Bob Cooper's

MARCH 15 2005

# SatFACTS

MONTHLY

Reporting on "The World" of satellite television in the Pacific and Asia

## IN THIS ISSUE



Vol. 11 ◆ No. 127
Price Per Copy:
NZ$10/A$11/US$/Eur8

"The Loewe Aventos 3770 ZW, at A$1499, is the lowest priced integrated DTT set in Australia. The current list of widescreen TVs in Australia shows 125 models from 15 manufacturers, starting at A$699. Of those, 74 models from 11 manufacturers are 'HD' starting at A$1599, nine models from four manufacturers have integrated DTT receivers; just one is both HD and DTT at A$10,624."

Jim Yaeger, CEO of Barrington Broadcasting, testifying on behalf of the (US) National Association of Broadcasters (NAB), on the TV set consumer labelling issue:
"It is unconscionable that each and every year another 30 million analogue-only TV sets are sold (in America) to unsuspecting customers ... without any warning that the product may soon be obsolete. Under the current tuner phase-in legislation, analogue-only (TV) sets will continue to be sold only until July 2007".

DVB-T/DTT's Hidden Truths
and the people who are keeping the secrets

# Hualin Pty Ltd

Satellite Equipment Specialists
Import and wholesale

Unit 51/159 Arthur ST Homebush West, Sydney Australia 2140
Phone: (02) 9763 1366 Fax: (02) 9763 1356
Email: sales@hualin.com.au Web: www.hualin.com.au

**For all prices, product information and banking details please visit the website or phone us.**

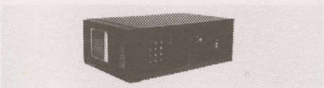
## Specials this month

DT800PVR - Digital Receiver

- 40Gb HDD = 40hr Record time
- 2x CI CAM Slots
- DiSEqC 1.2
- **Fibre Optic Output Capability**

Price: $390 AUD + GST

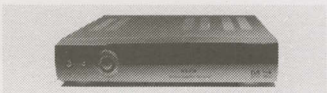
Satlook - Signal Meter



- Digital, Analogue and combined versions available
- A must for the professional
- Simple menus and functions

Price: Phone up for Quote

DreamMAX - DT470



- Irdeto embedded
- 4900 Channel Memory
- DiSEqC 1.2
- User Friendly

Price: $200 AUD + GST

## Everything? Yeah we got

### LNBF
- Zinwell C Band
- Zinwell KU Band
- MTI C Band, Superhigh gain
- One Cable Solution - CBand
- Dual Output KU 11300 MHz

### Positioners
- Superjack EZ-2000
- Superjack DP-6600, DiSEqC 1.0/1.2
- Technosat DP-200, DiSEqC 1.2
- Manual Actuator Driver - EW101
- SAP 2000: 99 Memory positioner

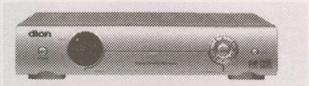
### Actuators
- Superjack HARL-3618, 18" Actuator
- Superjack HARL-3624, 24" Actuator
- Superjack DG-120, H/H Mount

### Receivers
- SuperNET CA, Irdeto Embedded
- Success, Free-to-Air
- Dion DT-370, Free-to-Air Receiver
- Dion 2x CI, Hardware AllCAMed
- ChangHong, Mediaguard embedded
- SuperNET Terrestrial, DVB-T
- Phoenix High Definition STB

### Dish and mounts
- 1.2, 1.8m Solid Prime focus
- 45, 60, 65, 85cm KU dish Offset
- **2.13m, 2.27m, 2.4m, 3.0m, 3.07m, 3.7m, Mesh Dish, Light and Heavy Duty PSI and JOYSAT Avaiable**

- CBand Wall brackets
- CBand Concrete mounts and stands
- KU Gutter mounts
- KU Wall mounts
- KU Float mounts
- KU Tinroof mount

Dion 818 CI - Digital Satellite Receiver

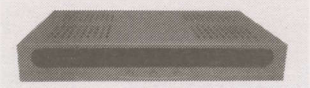


- Slim Size and User Friendly OSD
- 2x CI (Common Interface) slots
- Hardware AllCAMed

SuperJack H-H Actuator, DiSEqC embedded

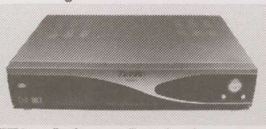
- All it takes is one coaxial cable.... NO MOTOR CABLE REQUIRED
- DiSEqC Positioner EMBEDDED!

Supernet - Terrestrial DVB-T



- Digital Terrestrial Receiver
- Slim Design
- High Quality Picture
- Easy to install and use

Dion316 - Digital Satellite Receiver



- FTA + Software Patched
- 4000 Channel Memory
- DiSEqC 1.0/1.2 Compatible

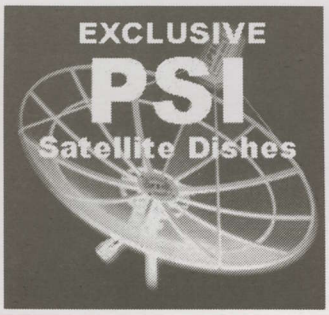
Price: $170AUD + GST

### Switches and Splitters
- 2 and 4 way DiSEqC switches
- 0/22kHz switches
- 2 and 4 way cable splitters
- V/H Multiswitch
- 0/12V Switch

### Cable - 15m, 25m, 305m packs
- RG6-U Dual Shield Coaxial Cable
- RG6-U Quad Shield Coaxial Cable
- Cat5 Actuator Cable

### Plugs
- F Connectors, Screw or Clamp types
- Cable joiners
- AV Splitters
- Cable Strippers
- Cable clampers
- Various other joiners and accessories e.g. RCA/SCART cables and converters

### Misc
- 2.4gHz AV Sender
- Irdeto 2.06B CAMs, Viaccess CAMs
- Satlook Digital Signal Meter
- Satlook Analogue Signal Meter
- Satlook Digital + Analogue combo
- Satellite finders
- Angle level measure instrument
- High Quality Compasses



# SatFACTS MONTHLY

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**is published 12 times each year (on or about the 15th of each month) by Far North Cablevision, Ltd. This publication is dedicated to the premise that as we enter the 21st century, ancient 20th century notions concerning borders and boundaries no longer define a person's horizon. In the air, all around you, are microwave signals carrying messages of entertainment, information and education. These messages are available to anyone willing to install appropriate receiving equipment and, where applicable, pay a monthly or annual fee to receive the content of these messages in the privacy of their own home. Welcome to the 21st century - a world without borders, a world without boundaries.**

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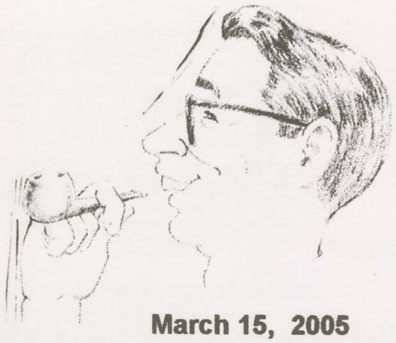
**our ELEVENTH year!**

## COOP'S COMMENT



**March 15, 2005**

The last time SatFACTS devoted essentially a single issue to one topic was June 1998; the failure of pay-TV service Australis. This issue-wide report deals with DVB-T aka terrestrial digital free-to-air television.

Because you subscribe to a publication devoted to leading edge television delivery technology, we assume most readers know 'how' DVB-T works. Or, you understand enough about it to appreciate that DVB-T is not simply a new wrinkle added to our present analogue TV delivery system. So we begin from that premise - assumption that in reading this analysis you have a grasp of what makes digital terrestrial work. But there are aspects of digital terrestrial that you may not appreciate, many of them negative - difficult to implement in the real world while searching for a toe-hold on a customer's slick tiled roof, waving a TV aerial around hoping to catch a signal before balance is lost.

Australia has DVB-T. Tonga has DVB-T. New Zealand does not, and point-in-fact, is coming closer and closer to reaching decisions that will ultimately affect 98% of households. It is the approaching decision in New Zealand which encourages us to devote pages 6 through 22 to an in-depth search for the truth behind DVB-T introduction in places such as Germany, Great Britain, the USA and yes - Australia.

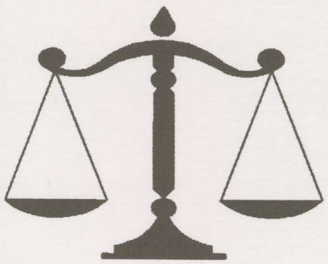
'The truth' is that digital has blemishes, problems not foreseen when it was a paper model awaiting exploitation. The 'technical limitations' of digital, in turn, directly impact the final decisions for a country such as New Zealand as it plots its own digital course.

'The truth' is that commercial opportunists have surrounded the catch word 'digital' and made it their own; largely for corporate gain. A walk through a consumer home appliance store reveals there are 'digital can openers', 'digital tape decks', 'digital electric knives' and yes - 'digital television sets'. Apparently, any product name amended with the addition of the word 'digital' sells better with the illusion that it is the latest, greatest, product in its field.

'Digital TV set' should suggest one very clear meaning; the capability of receiving digital through-the-air transmissions and displaying them on the screen. A running study now in its fifth year in America reveals that of all TV sets sold with the 'digital' label, only 15.7% actually meet this basic requirement; the ability to connect to an aerial and receive through-the-air digital telecasts. And the remaining 84.3%, so labelled? Varying levels of misrepresentation, degrees of consumer fraud.

The most frequent misrepresentation involves 'digital TV sets' which do not contain a digital tuner / demodulator. To make such a set actually receive digital requires a second purchase of a set top box (STB) which then connects to sockets on the rear of the TV set labelled 'digital input' or something equally mis-leading (in fact, the output of the STB is itself *analogue* and the so-labelled input to the TV set is also analogue!). Snicker-snicker; those silly Americans. They will fall for anything!

While snickering, wander into your local appliance store in New Zealand and ask them to show you 'digital TV sets'. Start with the multi-grand 42" Plasma display sets - near the top of the line. Now ask them to demonstrate actual reception of a digital broadcast for you. Of course they cannot do this - New Zealand (other than a BCL test in Auckland) has no such transmitters, yet. Oh yes, the 'digital TV' you are inspecting also has no 'digital tuner' or 'digital demodulator'. Pressed for the 'truth' - if the sales person even knows the truth - they will admit that it is 'digital *ready*' but will require a STB to actually receive digital telecasts. And will it then be 'digital'? Not quite, as we explain starting on page 6, here.



LETTERS

**UBI/Boulos 'local TV'?**

"Text promoting a new UBI channel sounds suspiciously like it will be somehow similar to the mis-named 'Aurora Channel' that has begun on Foxtel/Austar. 'Satellite Community TV' is the name and the promo says, 'You will be especially interested in our programming if you come from a culturally and linguistically diverse background (CALD) or Newcastle, Wollongong, Queanbeyan and Bathurst. Coming soon' and gives a web site as www. communitytv.com .au."

IF, Queensland

When everything else you have tried has failed to develop a business plan that at least pays the day to day bills, why not try 'local TV via satellite'? There's plenty of 'material' out there that has never appeared on TV.

**HUGE carriers on 1150 MHz L-band**

"We recently installed a pair of C-band systems, South Launceston and Newstead. Both are motorised and one was specifically for AsiaSat 2, the other for Thaicom. After installation, we found HUGE carriers at L-band 1150 which happens to be the downlink frequency for the European Bouquet (the reason the As2 site was installed). It is not UNwired, but it is very strong and sits right in the middle of a very important frequency range. I have contacted the appropriate authorities."

B. Watson, Western Video, Tasmania

That suggests 4,000 MHz C-band (5150 - 1150) which could well be newly installed point to point terrestrial microwave linking mobile telephone sites in the region. If so, they are probably legal although hardly of benefit to C-band viewers. Anyone else?

**Fiji's F-One CA status**

"I understand Fiji TV has acquired the 2006-2010 SANZAR rugby union rights for not only their country but the balance of the Pacific, less New Zealand. Could this be the reason why Fiji-One, which will carry this series, has elected to cancel their FTA status?"

Paul Burton, Waipu Cable TV

As a single programme 'buy', no. But as a part of the collective content they telecast, definitely a factor.

# PROGRAMMER PROGRAMMING PROMOTION UPDATE

**MARCH 15, 2005**

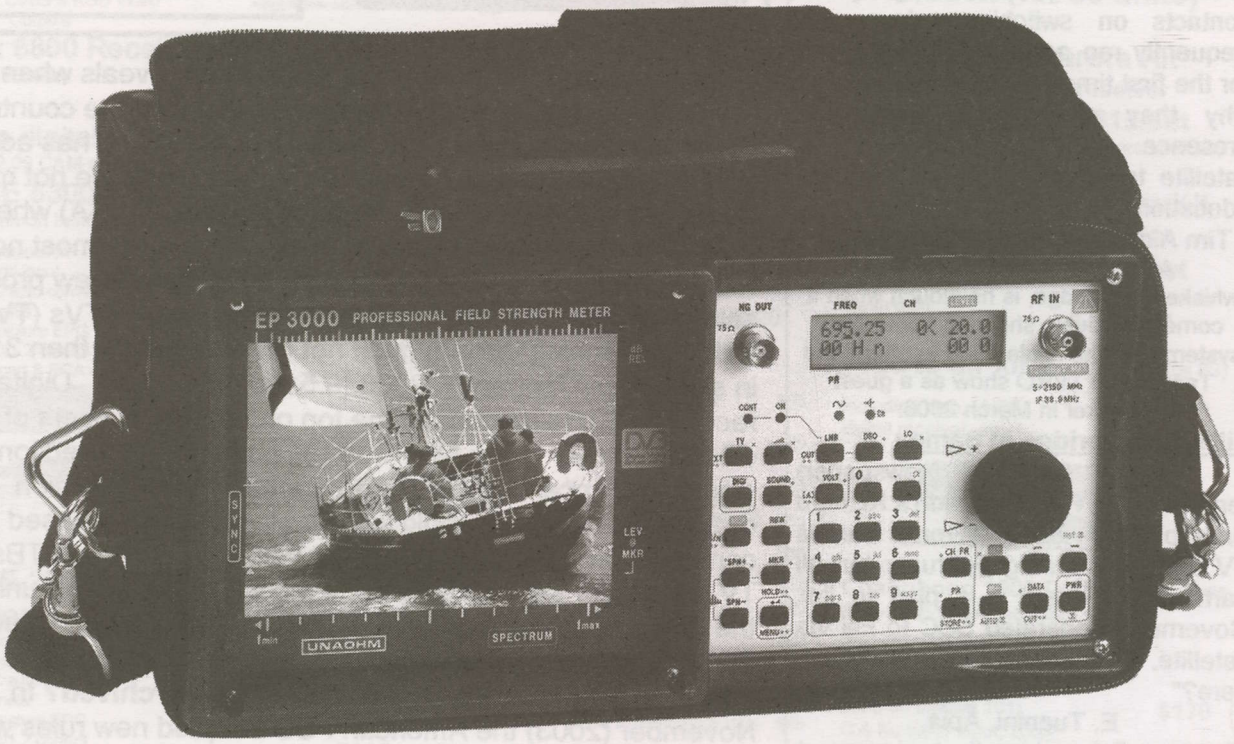
**Fiji One** has verified its C-band FTA (free to air) service, which began testing CA (conditional access) technology early in February, will in fact remain CA. There is no good news here. Why? When Fiji first planned satellite, using NSS-5 on Ku band, the footprint was sculptured to miss New Zealand and essentially all of Australia. But as readers know, the NSS-5 plans fell through, and I-701 (180E) C-band was the ultimate home for Fiji's 12 channels of TV (of which 11 were always going to be CA using Nagravision 2). Fiji was counting on the Ku-beam missing New Zealand and Australia to allow them to keep local terrestrial channel 'Fiji One' FTA. But the C-band coverage drops loud signals into all of NZ and the eastern half of Australia. Which creates a major problem. Many of the Fiji One programmes are also seen through NZ and Australian channels, which means potentially a New Zealand channel carrying 'Friends' on an exclusive contract with the rights owner could be facing competition from 'Friends' imported through Fiji (One). Yes, that seems like a major stretch of reality (as it would require Kiwis to locate, invest in, and install a circular polarised C-band dish system as well as obtaining a DVB-S receiver - all for one Fiji-oriented local channel). But Fiji TV is dealing with movie and TV show moguls sitting in their isolated, expensive wine-cooler equipped Burbank offices with very little, if any, connection to reality. Fiji TV is not pleased about this, as it changes all of the original C-band marketing plans; stay tuned.

**Australia's newly launched 'Aurora-TV'** (not to be confused with the Aurora service through Optus), has been added to Austar and Foxtel (digital) packages. The original announcement material suggested the channel would allow broadly based 'newly emerging' programming creators to obtain viewer exposure for their products. A subsequent announcement suggests otherwise: "The Catholic Church is one of the first organisations to provide programs for the (new) community channel, established to provide a platform for community groups, social service providers and faith-based bodies." Initial Catholic programming includes 'Mass at Home' and a documentary on charity work in East Timor.

**ABC2 has launched**, Optus Aurora channel 21 plus carriage on Foxtel + Austar services. The service features newly created children and teenager programming, repeat play (time shifted) ABC main channel programming, and materials ABC has created specifically for Internet.

**Foxtel is pressuring government** to modify TV piracy laws, making it illegal to have even one-off access equipment in a private home. Present law draws line at commercialisation of piracy activities. Strangely enough, US government is threatening Australia with sanctions unless the law is changed as Foxtel is requesting.

# History's on our side




Unaohm pioneered many of the TV measurement functions we've all come to trust.

1955 First VHF needle reading TV signal level meter.
1961 First UHF needle reading TV signal level meter.
1962 First VHF-UHF needle reading TV signal level meter.
1969 First TV meter incorporating an 11" B/W monitor.
1972 First TV meter incorporating a 6" B/W monitor.
1978 First TV meter with Analyser and Marker.
1981 First meter w. Analyser, Sync Pulse & Program store.
1983 First meter with Frequency readout and Audio tone.
1987 First TV meter with teletext decoding and analysis.
1998 First DVB complete BER measurement system.
2004 First DVB Adaptive Equaliser display.

Unaohm is a better meter too. Recent comparisons by RAI and Foxtel engineering departments confirm Unaohm are the first TV meters to get their Digital measurements right!

For reliability and function you owe it to yourself to check Unaohm out, at Laceys.tv.

# Easy to use with a huge function range.

Sole and exclusive Australian distributor:

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**Whiskers**

"I loved the report on the loss of I804, and the correlation with powerful outbursts from our neighbourhood candle (the sun). As a youth I spent many an hour while employed at Western Union burnishing brass contacts on switching relays and frequently ran across 'whiskers'. Now for the first time I know what they are, why they occur, and how their presence could in fact cause a satellite to go crazy. Thanks for the education!"

Tim Alderman, Oakland, California

Alderman, perhaps short on whisker-knowledge, is no slouch when it comes to trouble shooting home dish systems and he is planning to attend the Tasmanian TVRO show as a guest speaker in March 2006.

**Fiji's Broadbridge in Samoa**

"Samoa Observer (newspaper) reports relate Fiji Television's Richard Broadbridge visited several Samoa TV operators during February but all parties deny there is a plan to link Government operated SBC to Fiji via satellite. Are there copyright issues here?"

E. Tuanini, Apia

There are. But, perhaps the 'real purpose' of the visit was to identify potential resellers s and installers of Fiji TV's satellite service in Samoa; an agency for subscriptions administered from Samoa.

**Satellite Crunch Time?**

"Reference the excellent report on the solar disruption that appeared to destroy I804; mark Friday April 13, 2029 on your calendar. A giant asteroid (MN4), larger that three football patches, will make the closest flyby to the earth's surface of any object this size in recorded history. The latest revisions of the track place it 36,350km from earth at its nearest pathway point, inside of the orbit region of geostationary satellites (which on a scale of the distance to the moon is 1/10th). Scientists have 24 years to refine the actual passby distance but as one notes, 'It will be like standing on a train station platform and watching an express train go by 3 feet away; close but not dangerous.' If by some chance their predictions are wrong, and it hits the sea, the Christmas Tsunami from Indonesia will have been a minor."

Arnold T, Sydney

Well, that gives those under 50 something to contemplate for their older years!

# HARDWARE EQUIPMENT PARTS UPDATE

**MARCH 15, 2005**

**Power hungry STBs???** British research reveals when UK is totally digital, based upon existing STB models, the country's power consumption will increase by 8%. California has adopted new legislation mandating that STBs must consume not more than 8 watts (most now require 30 watts plus in USA) when operating, not over 1 watt when in standby mode (most now require 10+) - not later than January 2007 (for all new products sold on or after that date). Moreover, Integrated DTVs (TV sets with digital tuning built-in) must not consume more than 3 watts in standby by January 1, 2006 (9.5 months away!). Digital receivers, STBs are now at the top of the "heavy users of electrical power 'black list' " with UK notation, "Conversion to digital will cancel out 5% of the country's Kyoto emission reductions; digital TV could 'kill the planet' with increased power consumption." The problem, of course, is that digital STBs and TV sets never switch totally off, even when not in use, unless the mains plug is disconnected. Can a smaller country such as Fiji cope with this unexpected power load? Stay tuned.

**Free to air (and pay-TV) that cannot be archived?** In November (2003) the American FCC adopted new rules which require all television recording devices (TIVO hard drives, PC cards that allow TV reception to be recorded on the PC hard drive, VCRs) must 'look for' and 'take instructions' from a new element in the transmission, known as 'the broadcast flag'. If a TV programmer chooses, after 1 July 2005, to transmit the flag, it will tell any recording devices manufactured after July 1 (2005) the programme cannot be recorded. The same 'flag' would also prevent viewers from 'sharing' TV programming over Internet, or even through a 'home network' to a second TV set. Yes, it was the programme producers (Hollywood) that pushed this self-serving agenda through. Devices made before 1 July this year, without respect to when they are ultimately sold, will be free from this mandatory obstruction to archiving and sharing. A court hearing on the legality of this FCC order is pending.

**'TV Future Seminar'** is scheduled April 4-5 (Auckland), April 7-8 (Christchurch); $145 per person includes teas, lunch and first night dinner. April 4 and April 7 are dedicated to tutor Tony Dunnett teaching the basics of home dish installations; April 5 and 8 will be conducted by personnel from Denmark based Triax teaching the basics of MATV, CATV integration. Contacts are stuart@satmax.ws, or 03-343-5565 (027 279 5517).

**Foxtel** (followed by Austar) rolling out hard drive combo STB and archival device ('iQ') featuring 160 gigabytes of memory (some consumer boxes have as little as 40 Gb). Price is A$395 + $100 installation + $5.95 monthly - users do *not* own the hard drive recorder, but you can be certain $395 + $100 does cover Foxtel costs in the event the box is 'lost' or destroyed. The PDR ('Personal Digital Recorder') is the final major innovation in Foxtel's claim to be 'digital'. Sadly, *output* is *analogue.*

# Phoenix Technologies

## Satellite Equipment & Accessories One Stop Supermarket

## Phoenix JT3100T Digital Terrestrial Receiver

- Digital Audio Output (S/PDIF)
- Dolby Digital
- Wide Screen (16:9) Hot-Key
- S-VHS, CVBS & RGB Video Outputs

- Super-Fast Channel Scan
- Electronic Program Guide
- Channel Rename Function
- Software Upgradeable

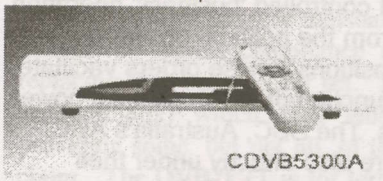
**$180/each (for 6 unit)**
**$160/each (for 30 units)**

### Magix 8800 Receiver
**(Made in Korea)** **$220**

### Coship digital receiver
**(Iredto V2.09 CAM embedded)** **$220**

### SPACE 5300A CI Receiver
**(Two Common Interface Slots)**

Auto PID correction
C & Ku band input
PAL/NTSC auto converter
5000 channels
Picture in picture EPG
DiSEqC1.0/1.2 control
TV/VCR Scart & RCA output
**$180**




### SPACE 2300 digital receiver

Auto PID correction
C & Ku band input
PAL/NTSC auto converter
5000 channels
Picture in picture EPG
DiSEqC1.0/1.2 control
TV/VCR Scart & RCA output
**$140**

### NextWave 3220 FTA digital receiver
**(Made in Korea)**

C & Ku band input, PAL/NTSC auto converter
5000 channels Picture in picture EPG
DiSEqC1.0/1.2 control
TV/VCR Scart & RCA outputs
**$160**

### NextWave 3220C digital receiver
**(Two common interface slots) (Made in Korea)**

**C & Ku band input**
**High symbol rate >45,000**
**PAL/NTSC auto converter**
**5000 channels Picture in picture EPG**
**DiSEqC1.0/1.2 control**
**TV/VCR Scart & RCA outputs**
**$220**

| | | | |
|---|---|---|---|
| Irdeto 2.06B CAM | $140 | Zinwell C band LNBF | $35 |
| Viaccess CAM | $140 | Zinwell 10.70/11.3 /Universal Ku band LNBF | $25 |
| 65cm offset dish | $27 | | |
| 75cm offset dish | $40 | MTI C band LNBF | $35 |
| Superjack DiSEqC 1.2 motor | $95 | One cable solution C-banc LNBF | $50 |
| Universal Mount | $15 | Satellite finder | $30 |
| 2.1m mesh dish | $120 | Silver Card (10/bag) | $125 |
| 2.3m mesh dish (motorized) | $170 | Gold Card (10/bag) | $85 |
| | | RG6 Stripper | $20 |
| 2.4m heavy duty mesh dish (motorized) | $210 | RG6/11 Crimper | $30 |
| 1.8m 6 panel dish | $130 | Angle meter (made in USA) | $85 |
| RG 6 Dual cable (305m/roll) | $75 | Compass | $30 |

### Optus C1 Aurora Kit
**Coship digital receiver**

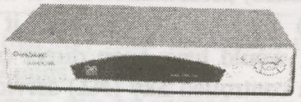
(Iredto cam embedded)
11.3 GHz/Universal Ku LNBF, 75cm dish, Mount bracket.
**$315/set**
+Aurora card $75

### LBC, ART, Al Jazeera Kit
**Coship digital receiver**

(Iredto cam embedded)
C-band LNBF, 2.3m Mesh dish.
**$435/set**
+Subscription fee $20/month*

### Free to air kit (for NSS 6, Optus B3)

Including dish, LNBF, digital receiver, etc.
**Start from $250/set**



### Changhong 1000 Digital Receiver
**Aston 1.05 Cam embedded**

*Best Value For Indian & French*
**(C-band on Asiasat 3s & Ku band on Intelsat 701)**
**C & Ku band input, 2000 Channels.**
**$170**

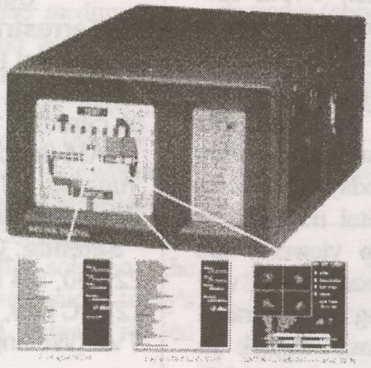
## (Top quality) TESTING EQUIPMENT SPECIAL (made in Sweden)

### Satlook MARK III $950

- 4,5" B/W monitor for PAL/NTSC/SECAM
- Satellite-receiver 920-2150 MHz
- Tunable sound 5,5-8,5 MHz
- Spectrum analyzer
- Expanded spectrum
- LNB voltage 13/18 V
- 22 kHz tone switch
- KU- and C-band (normal/inverted video)
- Built in rechargeable battery
- Only 3,5 kg complete with carrying-case

### Satlook Digital NIT $1550

We are pleased to introduce our new SATLOOK Digital NIT. NIT stands for NETWORK INFORMATION TABLE, which today almost all DVB-satellites transmit as standard. The NIT contains information about the Satellite and TV/Radio-channels. It's very easy to identify a Satellite when reading out this information. The different TV/Radio-channels on a transponder can also be read-out.



### Satlook COMBO $2550

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# TVNZ: A spare transponder and a "plan"

For several years, it has been possible to install a 60-72cm Ku band satellite dish, a MPEG-2 variant FTA receiver and the usual accessories, and from virtually any location within New Zealand (or Norfolk Island) 'tune-in' TVOne, TV2 and more recently Maori TV plus a couple of imported off-shore services including Germany's DW and China's CCTV9. There has been at best limited appeal to this sometimes 4 - sometimes 7 channel multiplex which typically seems to exist as an engineering test bed for some yet to be announced potential new service from TVNZ.

Back in August 2001, there was a plan to create, in partnership with TelstraSaturn, a multi-channel (up to 20 were planned) combination free to air (FTA) and subscription (pay-TV) package which, had it happened, and had it survived, would have been direct competition to the Rupert Murdoch controlled Sky (NZ) service. This TVNZ initiative had engaged a staff, created a marketing plan, and imported into New Zealand for distribution through existing appliance and TV outlets an estimated 10,000 complete Ku-band systems. At the 11th hour (and 55th minute), even as the service was testing on Optus B1 and brochures were at the printers ready for a massive advertising programme, the plug was pulled and the plan died (September 2001).

At the time, the project's death was a mystery. It is only slightly more understood today, 4 years later. TVNZ saw itself developing a method of delivering digital television directly to New Zealand's homes - an alternate to the very expensive terrestrial option (involving building new networks of DVB-T **[terrestrial]** transmitters at as many as 490 separate locations where existing analogue transmitters function). In the real world, where nobody today possesses a DVB-T receiver and a new network of digital transmitters would on opening day 'play to almost no viewers', the conversion from analogue to digital is both costly and will require some extended period of operating two parallel systems - the existing analogue and the new digital. In countries where DVB-T is now established (they are few - UK and USA lead that list which is very short), consumers will find their existing TV sets (and VCRs, etc.) will continue to function for some yet to be determined period of time. But on some date (not yet cast in concrete even in the UK and USA) such as 2008, consumers will awaken to discover that overnight their analogue service has 'switched off' and they are left only with the newer digital service. The 'theory' is that between yesterday and 2008 - or whenever the date actually is - consumers will replace existing TV sets with digital versions or as are now available for interim years, TV sets that will function with either analogue or digital reception.

If this were to happen, the inconvenience consumers would experience would be offset by their quick changeover from old-fashioned analogue to new-fashioned digital - all with the same receiver. Or, if they are already buying digital-only receivers, they can simply ignore the analogue anyhow from

Television New Zealand inaugurated terrestrial television in Auckland during 1960, nearly 5 years after Australia began a similar service. Until the early 1990s, TVNZ's One (and later 2) channel(s) provided essentially the only television available in the country. The addition of TV3 (and later 4), plus pay-to-view Sky channels grew through the 90s until TVNZ was seriously threatened as the most popular (and profitable) TV delivery service. Unlike TV3, 4 and Sky (and a handful of others including TAB), TVNZ remains a government controlled 'business' operation taking direct orders from the political power holding the key government positions. Those orders vacillate, understandably, as a function of which political power is pulling the strings. The BBC, Australia's ABC, America's PBS are also directly under their government's control but in each case there are safeguards in place which ensure the services operate through their own free will and exercise best judgements on programming content. TVNZ does not enjoy that luxury resulting in a 'politically motivated agenda' for virtually everything that happens with the service.

Current 'Test Status' TVNZ Digital

**Terrestrial**: UHF Channel 49 (694-702 MHz), apparent EIRP 1kW; COFDM (European) digital format from Auckland (Waiatarua) transmission site; 8k carriers, 1/32 Guard Interval, Code Rate 3/4 & 64 QAM (modulation). Four video channels currently running: DTT1 (TVOne), DTT2 (TV2), DTT3 (FV2 - Deutsche Welle) and DTT4 (FV3 - China's CCTV9).

**Satellite**: Optus B1 12.456V (transponder 4L), Sr 22.500, 3/4 (DVB compliant MPEG-2). (1) Maori TV, (2) CCTV9, (3) DW-TV, (4) TVOne [Wellington], (5) TV2 [Wellington], (6) TVOne [Christchurch], (7) TV2 (Christchurch].

Optus B1 12.483Vt (transponder 4U), Sr 22.500, 3/4 DVB MPEG-2 compliant (tests began late February; not fulltime as of publication date). (1) TVOne, (2) TV2, (3) TVOne, (4) TV2, (5) TVOne (Optus test card), (6) FV1 test card, (7) FV2 - CCTV9, (8) FV3 - CCTV9, (9) TV2 (Optus Avalon Studio test card).

Optus B1 12.671Vt (transponder 7U), Sr 22.500, 3/4 (part of Sky NZ multi-transponders). Following (TVNZ) channels are DVB compliant/MPEG-2 FTA: (1) TVNZ TVOne (VPID 516, APID 654), (2) TVNZ TV2 (VPID 517, APID 655).

Proposed but not yet formally announced: TV3, TV4 and Prime TV, currently Videoguard CA within Sky MUX, will become FTA thereby allowing TVNZ 'managed' receive systems to access all 5 of the channels nation-wide. Implementation date? Prior to mid-year 2005, *possibly*.

the first day they turn on their new receiver - assumung DVB-T exists in their area.

Alas, for this to be possible, all of the existing analogue service channels must also be telecasting in digital as well, thereby creating a viewing selection between the two formats when a new TV set enters the household. So for what period of time must the TV broadcaster continue to operate both analogue and digital before closing down the analogue? Most countries are adopting 'end of analogue' shut down plans based upon their own calculations of how long consumers can reasonably expect their existing analogue receivers to be useful. Germany, in a hurry on this issue, announced it would be shutting down analogue transmissions in various regions within six months of the announcement! That, obviously, did not give consumers much warning and when consumers reacted loudly against the announcement, the government trotted out 'Plan B' - they provide (free) digital reception equipment for each home qualifying as being 'unable to afford' the new hardware.

What makes this issue unusually complex is that there are 'shades' of digital compliance that stop short of actually replacing the analogue TV set. That would involve the STB (set top box) which is a half-way approach to digital, providing some, but not all, of the benefits digital advocates claim. The DVB-T (T is for terrestrial just as DVB-S - S is for satellite) set top box is a very close cousin to the basic satellite receivers you see featured in this publication. The primary 'hardware design difference' is the input side tuner which covers VHF or VHF + UHF terrestrial TV channels rather than satellite L-band. The significant 'software difference' involves the terrestrial algorithms attached to the digital format in use in an area. Beyond those two points, a 'T' and a 'S' are 95% part-for-part identical.

Returning to TVNZ and its number one medium term problem - how does it find common ground with the other New Zealand television interests to create a system for introducing DVB-T into New Zealand? There have been those within TVNZ who would ignore DVB-T (and in fact digital in any format) and when in 2008 or 2010 or whenever the bulk of the rest of the world has stopped transmitting analogue, the country would remain an 'analogue island'. Perhaps forever. Pride gets in the way of this solution - the same philosophy applied in 1906 might have avoided today's massive traffic jams, air pollutants and vehicle related injuries and deaths.

No, an 'analogue island' is not a solution and this returns us to the same point of beginning: We now have analogue, we desire a plan to get us off of this 70 year old technology and onto the latest gee-whiz world of digital. And we focus on the most controversial aspect of this; the 'transition period.'

Germany's approach aside ("*You* **WILL** *like digital!!!*"), the reality as proven to date in the UK and USA is as follows. Only a very small percentage of the existing analogue TV watchers will 'jump' at something 'new and better.' Sometimes it is ten percent, this time it has been well under that (barely 1% in the USA). The problem, it seems, is how consumers 'grade' their TV reception. Digital, when working as designed, produces 'brilliant, lifelike images' which designers have artificially enhanced with a new (digital only) aspect ratio; analogue screens have always been 4 units of width for every 3 units of height (4:3). Digital, and it is purely a 'sales gimmick' and planned that way from the outset, is 16:9 (16 units of width for each 9 units of height).

**The world of "Quasi-Digital"**

Broadcaster transmits on VHF or UHF frequency using COFDM or some other DVB-T format. Viewer installs digital terrestrial STB, connects to existing analogue TV set (RF connection, A-V connection, RGB connection) and using STB remote control selects programming channel to be viewed.

Advantage:

1/ Improved signal to noise reception, end of ghosting

Disadvantages:

1/ Image restricted to 4:3 format

2/ Digital STB may require replacement or first-time rooftop aerial

3/ Prior reception of existing analogue services not a guarantee that DVB-T will work, even with new aerial

4/ Ability to record DVB-T limited to channel selected by STB; to watch one channel and record a second requires 2nd STB (dedicated to VCR).

5/ Image 'quality' (definition - not signal to noise ratio) limited by STB analogue output and TV set analogue processing circuits.

But analogue reception can be viewed even when the quality of the reception is poor (snow/noise, ghosts, interference from passing motor vehicles) whereas digital has no 'fringe area quality' equivalent. An analogue signal can degrade (become less and less perfect) and still be watched right down to the 'threshold point' where there is more noise (dancing black and white dots which represent no signal present) than signal. Digital has a 'threshold' as well, but it is akin to falling off a cliff; absolutely flawless reception which degrades (abruptly) to absolutely no reception - at all.

This translates to a real world where folks who have imperfect analogue reception continue to have reception while in the same home a digital receiver may well produce just the latter condition ('no reception at all'). Experience in Australia, the USA and UK, after several years of

**The world of "Interim Digital"**

Broadcaster transmits in full COFDM or other DVB-T format, including mixture of 4:3, 16:9 or 'half-way' 14:9 aspect ratio format. Viewer installs 'Digital-Tuner' 16:9 widescreen TV receiver, uses TV receiver remote to select programme channel.

Advantages:

1/ Improved signal to noise ratio, end of ghosting.

2/ Improved definition (subject to TV receiver video processing circuit capabilities)

3/ Viewer or automatic aspect ratio selection covering 4:3, 16:9 and other variants (widescreen image)

Disadvantages:

1/ Digital tuning set may require replacement or first-time rooftop aerial

2/ Prior reception of existing analogue services not a guarantee DVB-T will work, even with new aerial

3/ Recording DVB-T on existing analogue VCR will require adding STB to VCR

4/ HDTV (high definition) requires special format TV set (over $10,000 versus $1,500 for standard format receiver)

transmitting DVB-T, tells us that the folks who once earned very good livings manufacturing, distributing and installing rooftop TV reception aerials are back in business; homes converting from analogue to digital with either no rooftop aerials or significantly aged aerials are having to install new 'digital grade' aerials to go with their digital reception equipment. It has been nearly twenty years since an American firm manufactured 'TV antenna rotors' - the rooftop device which upon command spins the TV reception aerial from one TV transmitter to another to peak reception quality. Wonder of wonders, in January for the first time in two decades, this seemingly obsolete home TV attachment is back in business all over again!

TVNZ knows all of this and much more. If they follow the same pathway as Australia, the USA or the UK, the first step towards the digital transition involves spending a very large sum of money (variously estimated to be in excess of NZ$30,000,000) to build a new network of digital format transmitters in parallel to their existing analogue network. This is 'the egg' - first, to entice consumers to convert to digital, you must put digital TV into the air.

Now assume this is done, and then at some future date to be announced, the analogue transmitters close down. At that point in time, has everyone who today has analogue reception converted to digital? Unfortunately no, and there are several reasons why.

1/ Of TVNZ's 490 analogue transmission sites (varying in transmission power from a high of 100,000 watts + to a low of 1/10th watt), only approximately 75 are required to serve 80% of the homes in the country. That means the next 415 existing TVNZ hill or mountain top sites exist to serve smaller pockets of population - some as small as a single home!

2/ Recall that digital 'turns on' when the signal is strong enough, 'turns off' when this is not the case. Also recall that in Australia, the USA and UK, practical experience teaches us that consumers will be required to upgrade, replace or add sometimes extensive rooftop aerials for digital reception - where presently they receive 'satisfactory' analogue reception without this added investment.

3/ There is the 'frequency' limitation. Existing VHF television channels (there are 11 in New Zealand) are heavily used. The few remaining 'open channels' virtually disappeared when TV3 began operation and last-to-air TV4 forced compromises which resulted in some stations sharing the same VHF channel in a manner which has significantly increased interference for many viewers.

DVB-T must, because analogue was there first, be essentially limited to the UHF channels. UHF channels operate at a handicap - they require more transmission power to cover the same distance (to the receivers) as VHF, and, accordingly they are more expensive to operate (use greater amounts of electricity) and to maintain.

Therefore, in rolling out DVB-T, New Zealand will be forced to shoehorn-in the new digital transmitters on UHF channels - channels for which the majority of the homes do not possess a reception antenna.

Engineering studies done by TVNZ's former engineering arm, BCL, and others, suggests that if every one of the 490 TVNZ analogue sites were to install UHF channel DVB-T to operate in parallel to the existing analogue transmitters, the 'coverage' (reception') of DVB-T would not exceed 80% of all New Zealand homes. Analogue, for the record, claims to reach 98% of all homes. This correctly suggests that any DVB-T plan that relies totally upon terrestrial transmitters will reduce TVNZ coverage by at least 18%. This number closely agrees with the experience in the UK and USA to date. The UK 'solution' will be to create another layer of DVB-T transmission sites - brand new sites not presently required for analogue. The US solution is to encourage satellite and cable to 'fill in' the holes. Australia has not yet admitted they have either a problem nor a planned solution.

New Zealand benefits by coming to the party late - the now evident coverage problems of those countries that began early did not exist - on paper - when DVB-T began. These problems have been a surprise, a not very pleasant surprise.

So what is the best plan for TVNZ - acting as the lead firm in New Zealand's eventual conversion to digital television delivery? The evidence, and experience from overseas, strongly points away from a totally terrestrial solution. Could it not be best to simply ignore terrestrial altogether and save what could ultimately become more than $100 million in capital investment with an uncertain eventual outcome?

The Sky card

There is a solution already in place, called Sky TV. Sky already carries TVOne, TV2, TV3, TV4, TAB plus recent entrant Prime to approximately 40% of all Kiwi homes. Why not just allow Sky's natural growth take up the slack, and by perhaps 2010 or so when Sky's penetration is approaching 60%, say to the remaining homes without Sky - "Government will now gift you with a Sky decoder and access to the free to air channels."

Numbers. If we assume 400,000 homes without Sky in 2010, and a hardware cost of $300 to equip each such home with a 'gift of FTA Sky service', it comes to $120,000,000. The Germans are doing just this - why not New Zealand? "*You* **WILL** *like digital!*"

**Configuring DVB-T on top of analogue**

As analogue already exists, and occupies virtually all possible VHF channels (11 total) in all areas, DVB-T must be introduced using UHF channels. This means:

1/ Homes adding digital (whether STB or 'Digital Tuning' TVs) will require a new (UHF) 'digital capable' rooftop aerial installed.

2/ To cover the same distance with UHF (saturation coverage of the intended area/region) as at VHF requires between 10 and 50 times as much transmission 'power', when both VHF and UHF are analogue.

3/ UK, USA, Japanese experience indicates even with 'monster transmission powers' approximately 20% of pre-existing analogue service area will not receive suitable DVB-T signal levels.

4/ In USA, stations with existing VHF analogue transmitters, now parallel transmitting DVB-T, will have option after analogue shuts down to return to their original VHF channel with analogue (a double investment in digital - once for interim UHF, later for return to VHF). Of note, 89% of such stations have elected to stay at the interim UHF channel. Reason? Power line, motor noise which is rampant at VHF but less at UHF is a major problem with digital reception - but a minor annoyance with analogue.

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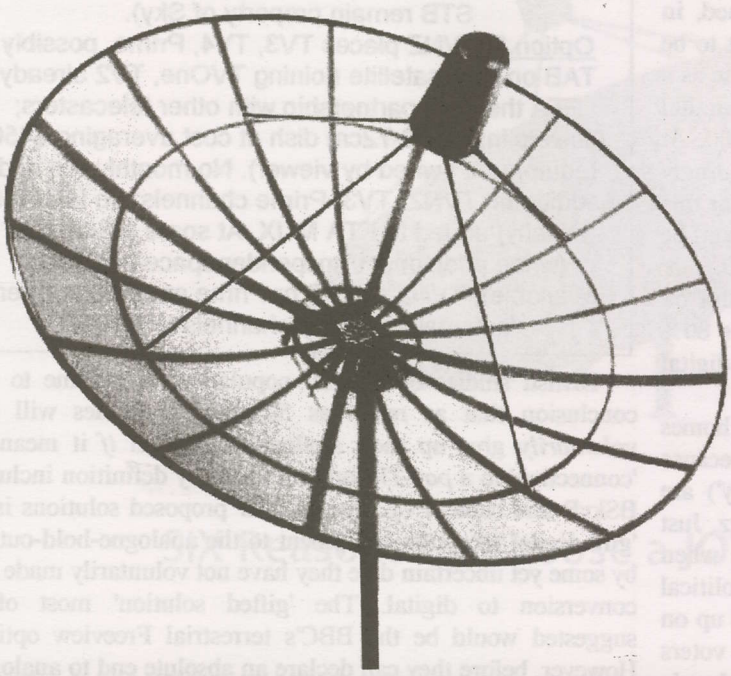

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$120,000,000 - budgeted for say 2010/2011/2012 would come down to $40,000,000 each year for three years. Government owned TVNZ would budget not less than $30,000,000 much sooner than that (say 2006/2007) to create a DVB-T parallel network to its existing analogue network. And if the UK model is followed, requiring an entirely new layer of DVB-T transmitters to fill in the last 20% of coverage that $30,000,000 will not reach, the cost will (based upon UK projections) at least double; $60,000,000.

But, TVNZ is not in this alone. They will be joined, in whatever plan is deemed best for the participants (not to be confused with 'best for consumers'!) by TV3/4 and Prime as a minimum. TV3/4 appears to believe they can build parallel DVB-T transmitters at their 60-70 sites for $10,000,000. At least that has been their public position. It is exceedingly unlikely that is an accurate forecast but we'll accept it for this discussion. Prime's cost of DVB-T would, by comparison, be half of TV3/4 so we'll factor in an additional $5,000,000.

And now we have 30 + 10 + 5 or $45,000,000 to 'spend' on creating DVB-T parallel transmitters. But only to serve 80% of each network's existing coverage pattern - because digital never has a 'fringe reception area'; *never*.

More numbers. Assume that 20% of New Zealand homes (including some very close to the DVB-T transmitters because the combination of UHF and digital works 'this way') are excluded from DVB-T; laws of physics and all that jazz. Just how 'friendly' will the occupants of those homes be when their present analogue TV is switched off? The political party, in power, when the decisions are made that end up on this unpleasant trail, will pay a price for depriving the voters of TV. You can bet on that! Of course these folks may already have Sky, or they will have the option of shifting to Sky; a slightly less painful 'political reality' but without question it would become a voter issue.

The anti-Sky element

The stumbling block to 'doing nothing' and promoting the Sky alternative as a means of delivering digital service to 100% of the country is the fear at all levels that by turning over TV delivery to Sky, a commercial enterprise, New Zealand could (or would) find itself 'held for ransom' by Rupert Murdoch and his Board of Directors. In the UK, the the BBC, driven by this concern, has backed 'Freeview TV' which began as a DVB-T (terrestrial) service and now includes FTA satellite delivery as well. As laudable as Murdoch's BSkyB DVB-S has been for penetrating the British TV marketplace against heavy odds, the monopoly of TV delivery worries the British Government. Investigative writer Neil Chenoweth quotes Murdoch in his epic 'Virtual Murdoch', the power behind the throne at BSkyB, espousing:

"A monopoly is a terrible thing, unless you own it."

Accordingly, the British are not placing all of their digital transition eggs into a single basket; a combination of cable delivery, satellite delivery, terrestrial (Freeview) and even telephone line delivery of television programming is in process there. A similar digital transition plan is underway in France and the essence of what the USA has done to date closely follows this format. Murdoch likes to characterise the transition to digital as a sporting event, a 'race' as it were, with some clearly defined 'winner' five to ten years down the road. In his mindset, only one delivery system will survive in a final showdown and he of course is betting on satellite.

**Satellite options for transition to all-homes digital**

Option 1: Sky turns off CA on TV3, TV4, Prime, perhaps TAB (TVOne and TV2 already FTA), viewers install 60-72cm dish system at cost averaging $450 (installed; equipment owned by viewer). No monthly charges for FTA channels (5 or 6 total).

Option 2: Sky leaves TV3, TV4, Prime, TAB CA, continues charging $17+ monthly for FTA reception package; dish install price averages $200 (dish and STB remain property of Sky).

Option 3: TVNZ places TV3, TV4, Prime, possibly TAB on FTA satellite (joining TVOne, TV2 already FTA there) in partnership with other telecasters; viewers install 60-72cm dish at cost averaging $450 (equipment owned by viewer). No monthly fee and additional TVNZ, TV3, Prime channels are later (or initially) added to FTA MUX. At some future date (when additional transponder space becomes available), TVNZ or TV3 or Prime are able to offer 'optional' pay-view channels to MUX.

British studies of the full population base come to the conclusion that as much as 50% of all homes will not *voluntarily* give up their analogue reception *if* it means a 'connection' to a *pay-TV* format (which by definition includes BSkyB and cable TV). One of their proposed solutions is to 'gift' digital reception equipment to the analogue-hold-outs if by some yet uncertain date they have not voluntarily made the conversion to digital. The 'gifted solution' most often suggested would be the BBC's terrestrial Freeview option. However, before they can declare an absolute end to analogue and begin the final count down to digital-only terrestrial television, there is the nettlesome coverage problem to solve.

Through a system very similar to the TVNZ analogue solution that currently reaches to 98% of New Zealand, the UK has over the decades built up an extensive (and expensive) intricate network of analogue primary stations supported by analogue channel 'repeaters' some of which, as in New Zealand, cover single villages. The presumption when DVB-T began was that if each of the existing analogue transmission sites was to be equipped with DVB-T transmission channels, the coverage of the digital would overlap and duplicate the pre-existing analogue. They were rudely shocked to discover this was not the case; digital terrestrial in the worst case reached barely half (50%) of the

**Mixing DVB-T and DVB-S for 100% coverage**

By using satellite to cover the complete country, augmented by terrestrial transmitters in areas where population density is high and terrain is 'friendly' (excluding major portions of Wellington, for example), digital delivery has options not available when either satellite or terrestrial are used exclusively.

Advantages:

1/ High power UHF can be minimised (greatly reducing capital costs)

2/ 'Second layer' DVB-T fill-in repeaters can be largely eliminated (saving millions of $$)

3/ Terrestrial operating costs including maintenance is fractionalised

4/ Satellite becomes alternate 'back-up' delivery even in metropolitan UHF areas when terrestrial service fails at any location because of reception problems

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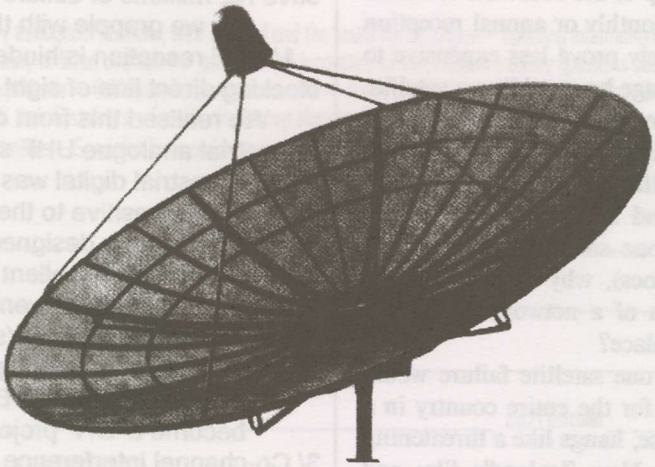

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homes receiving analogue from the same transmission sites (the average over all sites is closer to 80% coverage by digital of the same 100% analogue coverage per site). So before a 'drop dead date' for analogue can be pronounced, additional engineering resulting in additional digital-only fill-in relays is required. It is no coincidence that at about the point where this 80% versus 100% coverage problem was documented, the BBC took steps to place a group of the Freeview channels onto satellite in a free to air (no monthly or annual reception fee) basis. Perhaps it will ultimately prove less expensive to make up the missing 20% in coverage by providing a satellite backup to the Freeview terrestrial service.

That of course raises the question of why the British use terrestrial at all - other than the unfortunate fact that Freeview terrestrial began first and already has raced past BSkyB in consumer take-up? If one satellite can cover all portions of the UK (it can and does), why bother with the ultimately very expensive creation of a network of DVB-T terrestrial transmitters in the first place?

The answer here is a fear that one satellite failure would eliminate essentially all television for the entire country in a single shot. The same fear, of course, hangs like a threatening sword over the head of BSkyB, New Zealand's Sky and Australia's Foxtel + Austar as well. Satellites do fail, seldom with a warning (witness the failure of Intelsat's I-804 in January of this year; SatFACTS #126). An additional fear is the volatile nature of the satellite ownership business. During 2004, Rupert Murdoch acquired control of the entire fleet of PanAmSat satellites (the largest privately owned group of satellites in the world), while presently the once sacrosanct Intelsat group is being sold off to private investors. Intelsat began as a consortium of nations (more than 150 separate countries in 2003), largely owned and controlled by 'voting shares' held by each country's telephone firm. Would you trust Telecom New Zealand to protect 'your television satellite' if dollar-push came down to dollar-shove? *Not likely.*

So as desirable as moving everything to satellite might appear to be, on paper, as an accounting exercise comparing investment versus functional return, it is no panacea solution. There are dangers.

Freeview versus pay-view

The BBC managed Freeview DVB-T system has developed into a run-away success after a bankruptcy beginning. The service launched as a combination of pay to view and free to view, with emphasis on the pay portion. Additionally, the early STBs available functioned poorly, and at the time believing the myth that every DVB-T transmitter co-sited with existing analogue stations would cover the same area, consumers were sold STBs based upon postal zip code analysis ("If you live within L6V 5K4, you are assured DVB-T reception"). In fact, as hundreds of thousands of consumers would learn, reception was not guaranteed. In many areas, for two STBs going out the door of retail shops, one came back because it would not work. Those were early days, the aerial industry had not yet sorted out that most DVB-T installations require a totally new rooftop aerial (the do-it-yourself instructions incorrectly advised, "*Simply connect your existing aerial to the STB, the STB to your television set, and enjoy digital television*"), nor that when a home had two ore more TV sets connected to a common aerial, operation of one set can cause instant (negative) feedback to the second set. Coupled with these problems,

**Advantage NZ: The British lessons**

By not rushing into DVB-T, we can profit (learn from) the errors and discoveries of those who did pioneer this service. Of the two primary early adopters (UK, USA), our proposed 'COFDM' format will be much closer to the British than the American (ATSC) system. British experience in reception challenges will save NZ millions of dollars in wasted effort and hours as we grapple with this new technology.

1/ UHF reception is hindered by trees (vegetation blocking direct line of sight reception), hills, buildings. We realised this from our limited (Sky, other) terrestrial analogue UHF services but did not realise that terrestrial digital was from 2 to 10 times more sensitive to these 'intrusions'.

2/ A 'tidy', properly designed (high gain, narrow frontal receiving pattern, excellent impedance match) rooftop aerial is essential, even with line of sight to the transmitter. Pre-existing (such as Sky UHF) aerials, low grade cable, bad fittings will seldom function with DVB-T (it is unlikely DVB-T installations will ever become a 'DIY' project for most homes!).

3/ Co-channel interference (whether from pre-existing analogue transmitters or new digital transmitters) totally stops reception - blue screen!

4/ Selection of reception transmission cable, passive (signal splitter) and active (signal amplifier) components is critical. The STB or digital-tuner TV set are extra-sensitive to impedance mis-matches and low grade cable (anything with fewer than two complete 'woven' shields), 'plastic housed' splitters, PAL-plug type connections (versus the acceptable F family fittings) are all poor choices. RG-59 family cable is never acceptable (RG6 or RG-7 being the proper choice provided it has 2, 3 or even 4 woven shields).

5/ Amplifiers, masthead or distribution, processing (passing) both existing analogue and new digital service channels may not be capable of dealing with the 'sum' of both format signals. Higher output capable amplifiers may be a partial solution.

6/ Special problems are created with COFDM digital signals are operating one channel removed from pre-existing analogue (such as channel 49 analogue, channel 50 COFDM). Single channel attenuator-traps, to reduce the signal level from the (always more powerful) analogue, may be required before the STB or digital-tuner TV set will 'lock' on the COFDM service.

7/ Signal 'searching', on the roof with an appropriate BER indicating meter, is essential in perhaps 50% of all installations - especially when the receiving location is shielded by terrain or obstructions and there are 'multiple pathways' to the roof as the original signal bounces around between obstructions. Signal 'level' indicates when two or more such pathways 'coincide' but this fails to indicate when the signal is 'clean' of bit error rate degradation. BER capable metering is also essential when dealing with amplifiers and multiple set installations. Rule of thumb? "First you need a clean signal, then you need level - not in reverse as is the case with analogue." Which means? Signal level is secondary to signal quality.

# "EXPRESSIONS OF INTEREST"

# INTERNATIONAL SATELLITE 2006 CONFERENCE/TRADESHOW

## Country Club Resort ~ Launceston, Tasmania, Australia 9-11TH March 2006

***Who should attend:***

Trades people working in the Satellite Industry throughout Australia, New Zealand and the South Pacific Region – updating information, skills and knowledge – New comers to the Satellite Industry will have the opportunity to listen and ask the pioneers and innovators of the Satellite Industry questions about the latest technical developments, attend workshops and gain some hands on experience – Cable suppliers and manufactures - Broadcasting Service Providers - Miliary/Government – V SAT Equipment Buyers – VSAT Network/Private Network Providers & their Customers – Satellite Equipment Manufactures, Distributors and Buyers – Satellite Delivered Consumer Service Providers – Business Internet users – Education Departments – Specialist Tools and Instrument Suppliers - Government officials and policymakers – The Media.

First Name: _____ Last Name: _____

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We would like to attend the Satellite 2006: ☐ We are unable to attend: ☐

If you are travelling from outside Australia and require Visa information please indicate: ☐

Delegate: _____ ☐

Keynote Speaker: _____ ☐

Workshop presenter: _____ ☐

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How many m2 of space do you require:

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engineers finally worked out that DVB-T simply was not producing the 'saturation coverage' of an area that the co-sited analogue transmitters did (people with sub-standard analogue reception could still 'watch' the image; locations with below threshold *digital* watch nothing but a 'blue screen' announcement advising them they have no reception!). Still, more than a million STBs were sold (of which several hundred thousand would be returned). The concept was promising if the implementation left much to be desired.

Out of bankruptcy, after massive failure (the original creators of the service conceived the final indignity by bidding up soccer/football sporting event coverage and then could not afford to pay what they bid), the BBC took over the system and by creating the brand name 'Freeview' suddenly had a run-away hit on their hands. Actually, it was not 'sudden'; major changes were implemented in DVB-T transmission sites (increasing transmission powers, shuffling channels), installers were encouraged to attend week-long special courses directed at better understanding that the rooftop aerial was an essential part of any installation, and the BBC hit hard on the FREE part of the brand name by adding programming channels to the mix. Today, with approximately 30 FREE channels to view, and STBs selling for the equivalent of NZ/A$250 in retail shops, the old-fashioned terrestrial analogue (5 channels for most Brits) versus Freeview's 30 channels is an almost easy consumer decision. Quietly, an optional selection of ten + pay channels has also been added to some multiplex locations; consumers can receive movies and sports not included in the 30 FREE channels but unlike the predecessor service that ended in bankruptcy, all of the visible marketing emphasises the FREE portion and the total lack of any commitment to 'optionally purchase' additional channels.

There is an interesting bit of history that validates how important public perception of a 'brand name' can be. In the early 1960s, cable television was using a neoprene jacketed flexible cable similar to RG-11 for the main trunk lines. But the cable was difficult to install, and the 'spiral wrapped' copper foil shield portion would 'migrate' leaving gaping holes in the shield that allowed interference to leak into the centre conductor and cable signals to leak out. A firm in the states introduced a totally solid aluminium sheathed cable - the kind that all cable systems use today; we call it 'hard-line'. They described the cable as 'semi-rigid' because, unlike the RG-11 family of cables, you could not bend it into a tight turn (as in tying a knot). The new cable languished, unsold, because cable operators were fearful that it would be too difficult to install (bend to enter and leave cable equipment as required).

A competitor, Times Wire, began manufacturing the very same cable with all of the same characteristics including the inability to bend into a tight circle. But Times called it 'semi-*flexible*' (as opposed to 'semi-*rigid*') and overnight it became the new standard of the industry. Perception, in the mind of the buyer, is paramount to sales success. '**FREE**view' said what the consumer wanted to hear before he opened his wallet and laid a credit card on the counter.

STBs versus all-digital receivers

Virtually all of the emphasis to date, outside of the UK which leads the world in digital transition progress, has been on behalf of the transmission folks; the TVNZs of the world. You can see this emphasis at work in the USA, where surveys indicate something approaching half of the population has never even heard of 'digital TV'. Or if they have, they associate it with DVD players, not broadcast television.

This stumbling block (public perception of what digital is or is not) was the primary reason why the designers of digital created the 16:9 aspect ratio. They wanted the consumers to be able to simply *look* at a TV screen, notice it was longer/wider than what they were accustomed to watching, and somehow translate that observation into 'digital is better'.Yes, these clever folks were playing to human instincts ("*Wow!* W i d e *screen TV*!")

'Digital Ready' TV sets are now common place in retail outlets, even in New Zealand. A non-widescreen TV is passé, old fashioned, not to be desired - or so the salesman will advise consumers. Unfortunately, this is a myth promulgated by TV set designers and emphasised by TV set sales people to encourage abandonment of the older 4:3 aspect ratio receivers.

If you take a 4:3 image, the standard format from 1935, and 'blow it up' to 16:12, it is the same image only potentially larger in display. But, if you blow up the width from 4 to 16 (times 4) and the height from 3 to 9 (times 3), something terribly obvious occurs; 25% of the 4:3 image height disappears, lost by running some of the display off the bottom of the screen and some off the top. So when a 'widescreen

**HDTV? "I want my high definition!"**

Creative set manufacturers, unsavvy retailers, short-on-facts sales people are making a total mess of the public's (mis)understanding of the digital transition.

Fact:

1/ *Digital has a 'cleaner' image.* It does - the signal to noise ratio is better by several dB than the best analogue image you ever saw. Ghosts are gone; interference is gone - unless of course there are so many ghosts and so much interference on the incoming signal that there is no reception at all - blue screen!

2/ *Digital is a 'theatre-like' presentation.* Well, the screen is wider, but the height is shorter. 16:9 is 33.3% wider than 4:3 but simultaneously 25% less in height. And movie screens are not 16:9 anyhow - typically in the region of 2.5:1 (10:4).

Not a fact:

3/ *Digital is high definition.* It may be, but standard digital has no more 'lines of video' (on the screen) than standard PAL and depending upon STB design, it could have less than standard PAL.

4/ *A digital-tuning 16:9 TV set is 'HD'* (high definition) *'ready'*. No way.

5/ "*My 42 inch Plasma screen is an HD display system.*" Not quite. First it has to have a 'HD processor' either in the STB (these are not the least costly STBs!) or built into the set (Sony makes one for Australia - $10 grand each).

6/ "*My 42 inch Plasma display shows DVDs in HD.*" Also not true. Firstly, there are no HD DVDs yet available. Secondly, the DVD player outputs in analogue which makes sense because virtually all of the display systems are analogue TV sets. Finally, lacking HD DVDs, it is no surprise that there is also no such thing as a HD DVD player.

# X Digital Satellite Receiver

- DVB, MPEG-2 compliant
- 4000 channel capacity
- Extended EPG
- Program reservation through EPG
- Teletext decoding
- 8-event timer
- Parental control
- Renameable 8 favorite groups
- 4 sorting modes
- DiSEqC 1.2 USALS
- Picture-in-graphics
- Automatic NIT scan
- Multi language support OSD
- Software upgrading
- Unit-to-unit data transfer

## IF SECTION

| | |
|---|---|
| Input Frequency Range | : 950 - 2150 MHz |
| Input Frequency Level | : -65 dBm ~ -25 dBm |
| Noise Figure | : 12 dB Max. |
| Input Impedance | : 75 ohm |
| I.F. Bandwidth | : 36 MHz |
| Input Return Loss | : -8 dBm |
| Tuning Step Size | : 125 KHz |
| Demodulation | : Shaped QPSK |
| Symbol Rate | : 2-45 Mbauds |
| FEC Rates | : 1/2, 2/3, 3/4, 5/6, 7/8, AUTO |

## LNB SECTION

| | |
|---|---|
| Connector | : F-Type - Loop-through |
| Power | : 400 mA Max. |
| Polarization | : Horizontal : DC 16-19 V |
| | Vertical : DC 11-14 V |
| Band (Hi/Lo) Selection | : 22 KHz On/Off |
| DiSEqC 1.2 USALS | : 64 Universal LNB Control |

## SYSTEM RESOURCES

| | |
|---|---|
| Processor | : 32 bit (80 MHz) |
| SDRAM | : 8 Mbyte |
| FLASH | : 2 Mbyte |
| EEPROM | : 32 Kbyte |

## VIDEO SECTION

| | |
|---|---|
| Decoding | : MPEG-2 & MPEG-1 Compatible |
| Compression Technique | : Main Profile, Main level |
| Format | : PAL (NTSC) |
| Frame Rate | : 25 (30) Hz |
| Aspect Ratio | : 4:3, 16:9 |
| Active Pixel | : 720 x 576, 720 x 480 |
| Output Impedance | : 75 ohm |
| Composite Output Level | : 1Vp-p±0.07Vp-p (75 ohm load) |
| S/N Unweighted | : 57 dB Min. |
| Frequency Response | : 3 dB Max. (0.5-5.0 MHz) |
| Data Rate | : Up to 15 Mb/s |

## AUDIO SECTION

| | |
|---|---|
| Compression Technique | : MPEG-1, 2 Layer 1 & 2 |
| Sound Mode | : Dual (Main/Sub), Stereo |
| Frequency Response | : 2.0 dB - 20 Hz to 20 KHz |
| Output Impedance | : 600 ohm unbalanced |
| Total Harmonic Distortion | : 1% Max. - 40 Hz ~ 20 Khz |

## CONNECTORS SECTION

| | |
|---|---|
| A/V Out | : RCA x 3 |
| RF Out | : IEC Male |
| Aerial In | : IEC Female |
| Service Port | : RS-232C (115 Kbps Max.) |

## MODULATOR SECTION

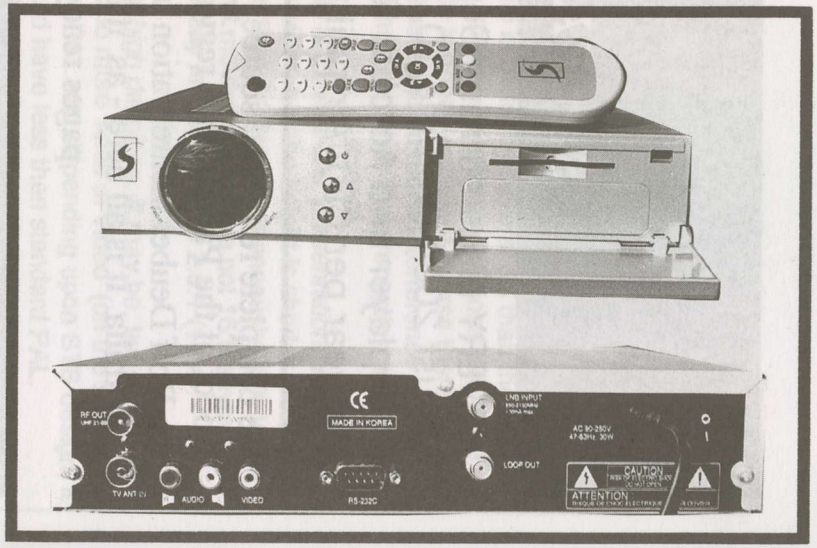
Output: PAL G/I/K CH : 21-69 UHF

## POWER SUPPLY

AC 80-264 V, 47-63 Hz, 40W Max. Power Consumption : 30W Max.

## DIMENSIONS

260 (W) x 240 (D) x 58 (H) mm



TV' is software adjusted for 16:9 but is receiving 4:3 images, the viewer sees people with no hairlines, trees with no tops, and Spiderman is missing from the top of tall buildings. Unfortunately, 96% of all TV programming ever created was 'shot' in a 4:3 aspect ratio format. So the viewer has two choices - an image that fills the full width and overspills the height, or, an image that fills the height properly but stops short of the two side margins (which the display electronically fills with black bars).

Over time, who knows how long, future TV shows will replace existing 4:3 shelves of programming with 16:9. In the interim, some consumer receivers attempt to correct this situation by filling the height top to bottom as the '3' in 4:3 does, and then electronically s t r e t c h i n g the w i d t h to also fill the screen in that direction. What you end up with is people with fat cheeks, teeth 25% wider than they are in actual fact, sporting fields that turn 10 yard markers into 12.5 yard markers. None of this is permanent but one other important feature of 'digital ready TV receivers' is forever; the fact that the TV set is not 'digital' after all, even if the manufacturer says it is and the salesman (mostly out of ignorance) insists it is.

There are digital TV sets on sale (in Australia for around A$1,500, in the UK for about half of that). They are not yet common in homes. What is a *digital* TV set?

A TV set to be 'digital ready' should require the ability to connect to an appropriate reception antenna, and then using built-in software 'locate' (identify) each of the DVB-T channels, placing them into the receiver's permanent 'tuning memory' which will then allow the channels to be recalled one for one with a remote control. Such a TV set also has the mandatory 16:9 screen against that future day when all programming will be actually transmitted in 16:9 (rather than today's 4:3 or the compromise 14:9).

There are *no* true digital TV sets yet on offer *in New Zealand* (save, perhaps, a mis-shipped Australian model set which, by the way, will not work in New Zealand anyhow - even after New Zealand adopts DVB-T [1]). 'Digital ready' is at best a misrepresentation by both manufacturers and retailers, and at worst, consumer fraud. For lacking the all-important 'digital tuner' portion (which does the channel selection work) and the 'digital DVB-T decoder' segment, the 'Digital Ready' TVs on offer are in fact no more than standard analogue TVs (with or without 16:9 displays) equipped with back of set input jacks to allow connection of a DVD player (remember, the first 'D' in DVD stands for 'digital'). The fellow fresh from Harvey Norman with a 16:9 flat screen 'digital TV' actually has an analogue TV with a widescreen display that does not even display digital video discs in 'digital'. Because what comes out of the DVD player is not even digital - *it is analogue*!

A true digital TV? It will never - not ever - in processing the input (whether from a TV channel, DVD player or digital tape source) treat the input with *analogue* circuitry. Can you purchase such a TV set today? No, not even in Japan (although the first such designs will be available in very limited - read super expensive - quantities by mid 2005).

So 'digital video discs' are not digital after all? Actually, the *disc* is digital; it is the players that are analogue, just as Sky NZ's *transmissions* are digital but what comes out of the Sky STB is analogue. There is a common reason why this is so; copyright.

A digital signal, whether sent through the air (Sky NZ, Foxtel, Austar) or carried home from the video shop (DVD), can be duplicated (copied) an infinite number of times. In contrast, a high quality VHS tape can be duplicated but only a few times before the quality drops to an unusable level. So copyright holders view digital with great concern; even fear.

A VHS tape is analogue, and if a digital signal is taken from a Sky STB or DVD player in *analogue* format, it is limited in reproduction by the analogue format. A 'real' DVD player - when such a device actually becomes available (not today, not tomorrow) - will interrogate the digital bits on the disc, process them digitally, link the resulting 'data stream' to a digital input on a 'true digital TV' and what the viewer sees on the screen will be 100% digital from start to finish. There are two missing links in this chain today: The DVD player which will not *output* in digital, and, the TV receiver/monitor that will not accept and process a digital *input*.

All analogue suffers from a number of built-in 'thresholds' - design areas which immutable laws of physics establish as barriers. For example, the best quality (S) VHS tape has a 'signal to noise' (ratio) in the region of 48-50 dB. And that is exceptional - most VHS tape *players* do well to reach 46 dB signal to noise ratio even if the tape itself was recorded with a better ratio. A DVD player outputs in analogue, because that was the shortest and fastest route to the existing universe of analogue TV receivers - and - that was the way the copyright folks insisted it should be. Therefore, while the DVD player's digital data bits might actually achieve a signal to noise ratio as great as 57 dB, the 'analogue transition' between the disc and the TV will knock that quality back to some number hovering either side of 50 dB. To put that another way, when the copyright folks allow it to happen, DVD players (not the one you own today - a new one) equipped with a digital *output* and connected to a digital *input* TV (again, not the one you own today because they do not yet exist) will produce on average 7 dB better signal to noise ratio than the best of the best you are likely to witness today in a Harvey Norman showroom (2). Then and only then, whenever it happens, we will have *true* 'digital television'.

Back to TVNZ - lost in the melee?

So how is a state-owned broadcaster to handle this quandary? If they 'fess up and explain to consumers that 'true digital' is not yet here, but the quasi-digital we now have through Sky does actually improve reception quality, will the

---

1/ Time to explode another 'digital myth'. When digital was first proposed, it was to be a 'world standard' ending forever the dozen-plus analogue 'formats' that have plagued us for 50 years. Sadly, there are already more digital 'standard' formats than we left in the analogue world and Australia has a transmission standard which is totally unique to that country. Digital TV sets for Australia will only work in Australia - no place else. Now, or as likely, ever.

2/ Which correctly suggests that all of those 'digital ready' TV sets being sold will be replaced sooner than otherwise required when consumers discover that it was not *digital ready* to begin with - a reality to be discovered only when 'digital *now*!' finally does appear in the marketplace. In the interim, if you put 'digital' on a product, it will sell better without respect to what it does or more importantly - how it does it.

A nation of 'palm-watchers'?

Lurking in the shadows, your not so friendly local telephone company has their own plans to speed television to viewers via the LCD palm screen cell phone. Out of the embryo stage now (Korea, with Japan to follow momentarily), 'palm-watching' is the next big consumer confusion. Digital, yes; through a limited bandwidth telephone circuit - yes, with images that are acceptable only because the screen is so tiny that definition is secondary to the awesome mobility of 'palm-watching'.

marketplace be confused? Of course it will. Will their mentors, government, be confused? Perhaps not a tiny handful of technobureaucrats but certainly at the elected level, confusion and perhaps distrust. Have not TVNZ's 'experts' been touting the switch over to digital for nearly a decade now? And requesting tens of millions of dollars to accomplish the switch over?

TVNZ has chosen to focus on three aspects of the digital transition which they have become convinced will have an immediate positive impact on the way television broadcasting functions in New Zealand. The first is the easily recognised perception that a 16:9 screen and digital processing, at least as far as the output of the digital STB, creates a better image. It does - but not always and that means TVNZ has to show a honesty with respect to the 20% or more of their existing analogue coverage area(s) which will find no reception at all, on digital. The most obvious answer to 'the loss of 20% of coverage' is to support the terrestrial DVB-T network with a satellite package. By covering the main population centres (subject to some coverage losses even here because of the hilly and uneven terrain in markets such as Wellington) with terrestrial transmitters, and then, anyplace that cannot receive terrestrial, with satellite, they will have the UK model. There are some negatives to this, as we shall see.

The second positive is that with digital, TVNZ (and one assumes the competition as well) can create multiple channels of programming where they today have a single programming channel. TVOne, using either a digital terrestrial multiplex or a digital satellite multiplex, can support two or more (up to six with terrestrial, as many as ten with satellite - and both will grow in number as the technology improves) channels in the fixed bandwidth (8 MHz for UHF, typically XX MHz on satellite). TVNZ, for example, will be able to offer a 12 or 24 hour news channel, a children's channel, a rerun channel and so on - subject only to the economics of programme production. It will also be possible to offer one-off sporting events or movies for a fee - in direct competition to Sky.

Which brings us to positive number three; interconnection. A DVB-T or a DVB-S STB can be configured to allow it to communicate directly with the programme provider through a telephone modem built into the STB (as the latest 'digital' versions do for Foxtel and Austar). TVNZ sees a variety of 'commercial' (read: money making) opportunities when they have a 'direct feedback system' between themselves and the viewers - including instant polling, the ability to measure in minutes real time viewing habits for each STB location, and the opportunity for retailers to take direct orders for products advertised as the viewer uses his/her remote control to 'buy'.

Most of these functions could in fact be implemented through Sky, although perhaps not as fast as TVNZ would like and certainly not with the 'freedom' they might achieve if they were in complete control of the entire system. Sky could be expected to extract fees for processing or making possible 'direct ordering' and polling, and if all of the orders and polling results passed through Sky on the way to TVNZ (or TV3/4, Prime), there is a measure of user confidentiality that is in jeopardy. In short, TVNZ (and the balance of the commercial broadcasters) become subservient to Sky's integrity and Rupert Murdoch's whims. Experience suggests this may not be a very safe bet.

Bandwidth versus bandwidth

DVB-S ability to stack ever greater numbers of programming channels inside of a fixed satellite transponder bandwidth has been steady and shows no sign of reaching a plateau (MPEG-4, scheduled to become available mid-year, further compresses programming channels allowing even more to fit into existing transponder space). Unfortunately, with a jump from the current MPEG-2 'standard' to the newer MPEG-4, before the programmer can activate MPEG-4 requires a change out of present STBs which now do only MPEG-2. But a *new* service, starting from mid-2005, using MPEG-4, could in fact begin with STBs that are freshly available to do the new format. If TVNZ elected to grab the latest technology, it would be a jump on Sky which will be married to MPEG-2 for as long as the existing universe of Sky STBs are in the field. This is one of many decisions to be made. The advantage to TVNZ (and fellow terrestrial broadcasters)? More programming channels, faster access time, a more direct connection to accessory gadgets such as the hard drive recording TIVO-type box. The disadvantage? Slightly more expensive STBs (at least initially) and the 'opportunity' to be one of the first to identify in actual use what the failings of MPEG-4 might turn out to be when it moves from the laboratory and restricted 'Beta-testing' to the real commercial world!

DVB-T faces a slightly different problem with emerging technologies. If you watch and believe the latest telephone company advertisements, it is now possible for someone in Italy, preparing to board an aeroplane to New Zealand, to try on a number of different clothing outfits and through their LCD screen cellular phone, share the outfits with someone in New Zealand - the New Zealander 'voting' on which outfit he (or she) likes best, and the traveller so dresses.

The telephone firms advertising this level of service have even less integrity than the TV set manufacturers or the sales people at Harvey Norman who send you home believing the 42" Plasma screen you just bought is 'digital.' But video on your cell phone, even TVOne or Sky Sport rugby, *is* coming. Sooner than most expect. Of course there are problems ahead to be resolved. For example, a cell phone battery pack, fully charged, as Korean telephone firms have recently revealed, will provide on average less than two hours of 'TV reception' before the battery caves in. OK - so they need better batteries. And then there was the fellow who used the system to watch his favourite Korean TV show and for the 90 minute telecast he received a A/NZ$221 invoice! Yes - the telephone company cell phone sites are bandwidth limited and when some 'hog' grabs the equivalent of several hundred telephone circuits to watch a TV programme, he (or she) will pay big money for depriving others with the opportunity to use their cell phones.

# WAVELENGTH communications

1 Rochor Canal Road,
#02-26 Sim Lim Square
Singapore (188504)

Phone # +65 6332 2275
Fax # +65 6334 3017
Email sales@wavelength.com.sg
Website www.satellite.com.sg

## TOPFIELD

| | |
|---|---|
| **TF3000CI*pro*** | Common Interface |
| **TF3000CIP*pro*** | CI with Positioner |
| **TF3200IR** | Irdeto embedded |
| **TF4000FI** | FTA |
| **TF4000PVR** | with 40GB HDD |
| **TF5000PVR** | with 80GB HDD |

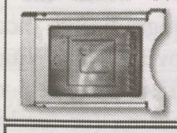
## SUPERJACK

**Positioner**
**EZ-2000**
**EZ-4000**
**EZ-6000**
**VBOX II DiSEqC 1.2**

Also Available:
**Moteck**
SG 2100A

**DG-120**
**DiSEqC H-H Mount**

## REALITY CAM



Compatible with:
CryptoWorks, Conax, Seca 1+2, Irdeto 1+2, Viacess 1+2
*Also available: - Irdeto CAMS - Viacess CAMS*

*MTI LNBF*

| | |
|---|---|
| *Single Universal Ku* | *AP8-XT2* |
| *LO 11.3 Ku* | *AP8-T2J* |
| *Prime Focus Ku* | *AP8-TWF* |

***MAXPLUS* HTS 9300+ Receiver**
**Multi-CAS Single slot card reader (Viaccess-2, Seca-2, Irdeto-2, Conax)**

*2.4GHz A/V Sender (TR.2420) with RC extender*

**Sat-Finder (SF-95)**

*Angle Level Meter (A100, A300)*

**DiSEqC 2x1, 4x1 Switches**
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*Splitters (TV & Satellite)*
*2 way, 4 way, 6 way, 8 way*

**Mesh Antenna (Dynasat, PSI)**
**2.1m, 2.4m, 3m, 3.7m**

*Solid Antenna*
*65cm,75cm,90cm, 120cm, 150cm,180cm, 240cm*

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**RG-6, RG-11 / 100m, 305m**

*PC to TV Converter PX Brand*

## DMS International

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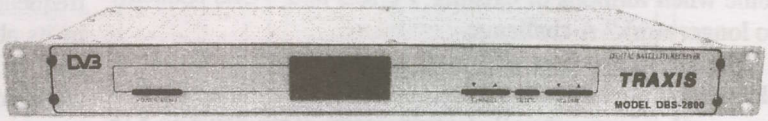
**PROFESSIONAL**
**RACK MOUNT FTA MPEG-2 + 1**
**DIGITAL RECEIVER**

Traxis DBS-2800 19" Rack Mount Digital Receiver - Great commercial receiver at a great price.




TRAXIS DBS-2800 19" rack mount digital receiver - ends cumbersome "consumer receiver" lash-ups in SMATV, CATV headends! Everything you would ask for in a FTA professional receiver: MPEG2 and MPEG-1 compatible, NTSC/PAL/SECAM baseband output, user settable 4:3 and 16:9 image ratios, QPSK for SCPC and MCPC, full DVB FEC rates. LNB(f) 13/18VDC (500 mA max) with short-circuit protection; DiSEqC 1.0. Mains 85 - 260VAC, 50 to 60 hertz, 21 watts maximum draw. Mono, dual mono and stereo audio recovery. L-band input 950-2150 MHz, -65 to -25 dBm, channel bandwidth 36 MHz. Data port 9 pin D-sub type using RS232 protocol, maximum data rate 57.6 Kbps. Mechanical: 480mm (wide), 245mm (deep), 41mm (high; 1 RU).

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MPEG, in a format which can be crammed into a cell phone site, remains experimental; essentially, unproved in regular use. Of course it will be corrected but as long as it remains fluid, the folks designing and selling cell phones with a 'TV reception capability' will be doing constant upgrades and software modifications - making such telephones as 'temporary' as the interim design 'digital ready' TV sets now being sold. But its ultimate success will have a direct impact on where, when, and how a population actually watches television. And this will be a worry for those who are attempting to 'future-proof' their own digital transition plans. If we become a nation of 'palm-watchers' rather than parlour viewers of television, how will that effect the scheduling and content of TV programming? Nobody knows the answer to that one, and it may well be a decade before we do.

The multiple set challenge

And there is the question of what do you do with the table top TV set purchased for $119 at Dick Smith or The Warehouse which functions in the kitchen or kid's room? And, what about those motel and hotel distribution systems which were designed for (and equipped with) analogue? Or, the VCR/VHS recorder challenge.

Anything that is analogue today will, when DVB-T arrives, require either replacing, or, retrofitting with a STB (digital in / analogue out to the existing analogue TV set). Replacement will mean throwing out a $119 cost device with a TV set or VCR that accepts digital input directly. And it will cost far more than today's $119 end-of-era analogue pricing!

Logic suggests that most people, faced with spending $500 for a digital-design TV set/VCR, or, spending $150 for a STB that allows continued use of the existing TV/VCR, will initially opt for the latter. Not that they will be pleased when they learn their analogue equipment no longer functions and it was a 'political decision' that caused their kitchen or bedroom equipment to suddenly stop functioning. If you are 'in power' and actually make this decision, how do you protect yourself (and your governing party) from the fall-out sure to come when millions of existing TV sets and VCRs suddenly no longer work? A challenge.

The advantage here may well turn out to be in favour of Sky, which already offers a 'second STB' for a home for $25 per month - a number that could easily come down to $15 when Sky works out how to ensure that 'second set STBs' remain in the home where they were intended rather than becoming 'cut-rate first set devices' for a neighbour or friend.

And - the driver?

With all of the problems unique to digital, why is DVB-T going ahead? The answer is three-fold.

Digital is truly capable of better quality reception, although perhaps not as good as originally forecast and certainly not without the reception problems it has spawned. The 'not as-good-as' problem is temporary - give us a decade or two, and it will be 100% digital and then, finally, capable of producing the 'theatre-like' images initially promised. Be patient.

Plus, digital is far less bandwidth hungry; more programming channels can be compressed into less megahertz spectrum space and in a limited spectrum world, that's good news. The broadcasters like this, a lot; one channel becomes two or four plus, all more or less for the original cost of one. More channels, more business opportunities, more revenue. So digital quickly earned the full support of the broadcasters.

**Guess who will 'buy' VHF channel spectrum!**
VHF and UHF do things cell phone firms covet; they go where microwaves cannot go; into buildings, through tunnels, into CBD centres. When analogue TV shuts down - telephone will be waiting.

With the viewers getting better quality and the programmers accessing more channels, that leaves the government. What do they get out of it? This is the ultimate 'driver', the real motivation for so much political interest in causing (or forcing) digital 'to happen'. If an analogue TV station requires 6 or 7 or 8 megahertz of spectrum space to send out a single TV programme, but a digital service using the same bandwidth can compress as many as 6 programme channels, the government can reclaim huge chunks of VHF (and UHF) spectrum which today are dedicated to analogue TV transmission. And when they get back these ex-analogue TV channels, what then?

Revenue. *Big-time revenue, for government.*

TV stations, more or less universally world-wide, do not pay government for their spectrum space. It goes back to the 30s, 40s, 50s and 60s - television was considered a 'risky' adventure in an unproved field and most governments were grateful, at the time, to have someone take the 'risk'. Of course that has changed (a single TV station in the USA recently sold for US$2.5 billion!).

Married to analogue, a city such as Auckland eats up close to 100 megahertz of spectrum space just for TV station use and all of this space is 'prime property' in the much coveted VHF and UHF spectrum. Nation-wide, world-wide, there are hundreds of billions of dollars - trillions in fact - to be recycled and sold to waiting potential users. All of this begins when the existing analogue channels shut down, freeing up tens - hundreds of megahertz. It is the electronic equivalent of recycling plastic bottles at the tip.

Potential spectrum buyers? Remember the problem facing delivery of television to palm-held cell phones? Not enough frequencies? And what band of frequencies is already proven in its ability to deliver television? Yes, VHF and UHF. And that is but the tip of an iceberg loaded with potential technologies waiting in the wings for access to frequency space. Others include personal PC to PC communications within a building, or complex; tracing of 20 and 40 foot shipping containers no matter where in the world they may be located using unique radio identifiers; wireless video cameras to assist police and traffic control personnel monitor hundreds of locations simultaneously from a central control centre. And who knows what new technology will be created over the interim decade as analogue TV does a swan song!

Government correctly sees dollar signs - big dollar signs - in 'selling' five, ten and twenty year use rights for the frequencies now occupied by analogue TV. And that, when all is said and done, is '*the driver*' that motivates government to stay on course looking for solutions to the practical problems discussed here.

TVNZ is a 'tool' in the hand of government to cause this transition to take place. It may *internally* believe it is on a quest for the 'holy digital grail' - alas, it is not. In the end, it is all about money - funds for government to spend without much regard for how much *more* money their actions will cause the populace at large to spend just to retain their present TV viewing choices. The 'fun' is just beginning.

# SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 MAR, 2005

| Bird | Service | RF/IF &Polarity | # Program Channels | FEC | Msym | Receivers and Errata |
|---|---|---|---|---|---|---|
| Thcm3/78.5 | SkyChAust | 3695/1455H | up to 3 | 3/4 | 5(.000) | CA (#1, 3); FTA audio #2 (dm) |
| | **ANT Greece** | 3672/1478H | 1 TV | 3/4 | 13(.333) | Late July 04: room for more (FTA) |
| | **Korean Central** | 3665/1485H | 1 | 2/3 | 3(.367) | Global footprint; changes 02/03. |
| | **TARBS ME mux** | 3640/1510H | 12TV, 12 radio | 2/3 | 28(.066) | CA + 2 FTA(A1TV, IRB3)( |
| | **Ch Nepal** | 3626/1524V | 1 | 3/4 | 15(.556) | New 03/03; FTA |
| | **Mahar mux** | 3600/1550H | 11TV, 1 rad | 3/4 | 26(.667) | Thai + Indian services; FTA |
| | **SE asia Mux** | 3569/1581H | 2+ TV | 3/4 | 12(.500) | MRTV3, MRTV (DM) |
| | **RR Sat mux** | 3551/1600H | 8TV,10 radio | 3/4 | 13(.333) | 3TV, 5radio inc. Hellas TV Greece FTA |
| | **JAIN TV** | 3538/1612V | 1TV | 3/4 | 3(.300) | PIDs 4132/4133 |
| | **PTV1 +** | 3521/1629V | 1TV, 1 radio | 3/4 | 3(.333) | frequency change |
| | **FTA Mux** | 3520/1630H | 12TV, 12 radio | 3/4 | 29(.800) | Aug 04: 5TV, 1 ra FTA (India) |
| | KTN plus | 3500/1650H | 2+ TV | 3/4 | 26(.667) | Irdeto 2, apparently SE Asia based (08-04) |
| | **TVK Cambodia** | 3448/1702H | 1TV | 1/2 | 6(.312) | **FTA** |
| | **TARBS/Th5** | 3480/1670H | 12 TV+radio | 2/3 | 26(.667) | **3FTA**: TV5, VTV4, ATN Bangla |
| | KCTV/Korea | 3424/1726H | 1TV | 3/4 | 3(.366) | Not 24 hour; FTA? |
| | **Thai Global** | 3425/1725V | up to 7? | 2/3 | 27(.500) | FTA (reaches SE Australia) |
| InSat 2E/83 | **ETV mux** | 4005/1145V | 6+ TV | 3/4 | 27(.000) | Several ETV now here; wide beam |
| | **Hyd Dig 2E** | 3910/1240V | 1 | 3/4 | 5(.000) | SCPC, OK E. Aust. wide beam |
| | **Kairali TV** | 3699/1451V | 1 | 3/4 | 3(.184) | SCPC, OK E. Aust wide beam |
| | **Indian mux** | 3643/1507V | 3 | 3/4 | 19(.531) | corrections 12/02 |
| | **ETV Mux#2** | 3485//1665V | 4+TV | 3/4 | 27(.000) | Several new ETV here; Asia beam |
| | **Sky Bangla** | 3430/1720V | 1TV | 3/4 | 6(.000) | New - November 2002 |
| NSS6/95E | **Ant Pac (Greek)** | 11.104H-Australia | 1 TV | 3/4 | 2(.800) | (still) FTA 011-04; was 11.083H |
| As2/100.5E | **Guangdong TV** | 4075/1075H | 1TV + radio | 3/4 | 6(.000) | July 04: FTA |
| | **Euro Bouqt** | 4000/1150H | 6TV, 21r | 3/4 | 28(.125) | FTA TV + radio; TV5 Asie moved "down" April |
| | Reuters News | 3905/1245H | 1TV | 3/4 | 4(.000) | Was 3923H; sometimes **FTA** |
| | **WorldNet** | 3880/1270H | 4+/28radio | 1/2 | 20(.400) | FTA; multiple audio services V2360, A2320 |
| | APTN Asia | 3799/1351H | 1 | 3/4 | 5(.632) | Sometimes **FTA**; also 3895Vt |
| | Reuters/Sing. | 3775/1375H | 1 | 3/4 | 5(.631) | **FTA** & CA |
| | APTN Asia#2 | 3705/1445H | 1 | 3/4 | 4(.166) | **FTA** and CA - NASA reports included |
| | **Macau MUX** | 4148/1002V | 5TV | 3/4 | 11(.850) | 5 chs TV, FTA, some tests |
| | **Feeds** | 4086/1064V | 1 | 3/4 | 5(.632) | FTA SCPC feeds |
| | **Dubai MUX** | 4020/11430V | 4+, radio | 3/4 | 27(.500) | FTA , EuroSport PID change (1213/1313) June |
| | **Fashion TV** | 3796/1354V | 1 | 3/4 | 2(.626) | FTA as of May 1, 2003 |
| | **Trace TV** | 3792/1358V | 1 | 3/4 | 2(.400) | new here Dec 2004; Euro-French music videos |
| | **3-ch miniMUX** | 3752/1398V | up to 3 | 3/4 | 5(.640) | Sun-TV, Surya TV, KTV (FTA) |
| | **Saudi TV1** | 3660/1490V | 7+/tests | 3/4 | 27(.500) | FTA MCPC; Yemen, MBC EUROsport tests |
| As3S/105.5E | Telstra I-Net | 12.596V | no TV | 5/6 | 30(.000) | Signal useful for dish testing - no TV |
| | **RR Mux** | 3669/1481V | up to 5 TV | 3/4 | 13(.333) | Blue Kiss moved to 3760Hz from here Dec 2004 |
| | Zee bouquet | 3700/1450V | 10TV | 3/4 | 27(.500) | Now SECA 2 CA (10-04) |
| | **Ch News Asia** | 3706/1444H | 1TV (+) | 3/4 | 6(.000) | New September 2003; English + V1160, A1120 |
| | 3 ch MUX | 3723/1427V | 3TV | 3/4 | 6(.500) | Conax CA, 3 ch movie mux; Dec 2004 |
| | **SAB TV** | 3743/2407V | 1TV | 3/4 | 3(.300) | |
| | **Arirang TV** | 3755/1395V | 1 | 7/8 | 4(.418) | FTA SCPC; New PIDs V3601, A3606 June 2003 |
| | **Now TV +** | 3760/1390H | up to 10TV | 7/8 | 26(.000) | CA + **FTA** + Blue Kiss adult (CA) |
| | Star TV | 3780/1370V | 7(+)TV | 3/4 | 28(.100) | NDS CA (Pace DVS211, Zenith) |
| | **GXTV** | 3806/1344V | 1TV + 3 radio | 3/4 | 4(.420) | Guangxi TV; was As2 |
| | **Shaanxi TV** | 3813/1337V | 1TV + 2 radio | 3/4 | 4(.420) | Was As2 |
| | **Anhui TV** | 3820/1330V | 1TV + 2 radio | 3/4 | 4(.420) | Was As2 |
| | **Jiangsu TV** | 3827/1330V | 1TV + 2 radio | 3/4 | 4(.420) | Was As2 |
| | **HLITV** | 3834/1316V | 1TV | 3/4 | 4(.420) | Was As2; HeiLong |
| | Star TV | 3840/1310H | 7(+) TV | 7/8 | 26(.850) | NDS CA (Pace DVS211, Zenith) |
| | Star TV | 3860/1290V | 5(+)TV | 3/4 | 27(500) | NDS CA (Pace DVS211, Zenith) |
| | **AbuDhabi MUX** | 3880/1270H | 8+TV, 10Radio | 3/4 | 27(.500) | New April 2004: link to Optus B3 Globecast |
| | **Dragon TV** | 3886/1264V | 1 TV | 3/4 | 4(.800) | Shanghai |
| | **Shaandong** | 3895/1255V | 1TV + 6 radio | 3/4 | 6(.813) | Apparently Mongolia; was As2 |
| | **Jilin TV** | 3914/1236V | 1TV + 1 radio | 3/4 | 4(.420) | Was As2 |
| | **Star TV** | 3920/1230H | 4+ TV | 7/8 | 26(.850) | Star Sports Asia (+), **FTA** NTSC; V514, A670 (10-04) |
| | Star TV | 3940/1210V | 6(+)TV | 7/8 | 26(.850) | NDS CA as above; may NOT be operational |
| | CNNI | 3960/1190H | 8(+)TV | 3/4 | 27(500) | PowVu CA; new SR Apr 29; CNN radio **FTA** |
| | StarTV | 3980/1170V | 6+TV | 3/4 | 28(.100) | NDS CA; Star News India **FTA** VPID 514, APID 648 |
| | **Star TV** | 4000/1150H | 8(+)TV | 7/8 | 26(.850) | NDS CA w/ **4(Chinese) FTA** |
| | **Sahara digital** | 4020/1130V | 8TV | 3/4 | 27(.250) | New Sr September |
| | **Hubei TV** | 4035/1115H | 1TV + 2 radio | 3/4 | 4(.420) | Was As2 |
| | **Tianjin TV** | 4046/1104V | 1TV + radio | 3/4 | 5(.950) | new December 2005 |
| | **Sichuan TV** | 4051/1099H | 1TV + 1 radio | 3/4 | 4(.420) | Was As2 |
| | **Qinghai TV** | 4067/1083H | 1TV + 2 radio | 3/4 | 4(.420) | Was As2 |
| | **Hunan TV** | 4082/1068H | 1TV + 1 radio | 3/4 | 4(.420) | Was As2 |
| | **Pakistani TV** | 4091/1059V | 5TV, 1 radio | 3/4 | 13(.333) | new Sr, channels, Nov 2003 |
| | **Sun TV** | 4095/1055H | 1 | 3/4 | 5(.554) | "History Channel" - SCPC |
| | TVB8 Mux | 4110/1040H | 3 | 3/4 | 13(.650) | **MATV Chinese movies FTA** +CA; new Sr 05-04 |
| | **Indus News** | 4115/1035V | 1 | 3/4 | 3(222) | Hindi (+ "Plus") |
| | **CCTV bqt** | 4129/1021H | 4(+) TV | 3/4 | 13(.240) | moved from 4115 |
| | Zee Bqt #2 | 4140/1010V | 8(+) TV | 3/4 | 27(.500) | Now SECA 2 CA (10-04); 1 occ. FTA (varies) |
| | **Henan TV** | 4166/984V | 1TV + 4 radio | 3/4 | 4(.420) | Was As2 |
| | **Fujian TV** | 4180/970V | 1TV + 2 radio | 3/4 | 4(.420) | Was As2 |
| | **Jiangxi TV** | 4187/963V | 1TV + 2 radio | 3/4 | 4(.420) | Was As2 |
| | **Liaoning TV** | 4194/956V | 1TV + 2 radio | 3/4 | 4(.420) | Was As2 |
| Cak1/107.5 | Indovision (S-band) | 2.535, 2.565, 2.595, 2.625, 2.655 | 33(+) TV | 7/8 | 20(.000) | NDS CA using RCA/Thomson, Pace IRDs; **2.535 has 2 FTA** |
| T'Kom/108E | **IndoBqt** | 3460/1690H | up to 6 | 3/4 | 28(.000) | also 3586H/17.500, 3496H/19.615 |
| C2M/113E | **TPI** | 4185/965V | 1 | 3/4 | 6(.700) | FTA SCPA; NT/NC only |
| | **TVE Asia-Africa** | 4160/990H | 1 | 3/4 | 5(.632) | New August 2003 |
| | **Anteve** | 4144/1006V | 1 | 3/4 | 6(.510) | change from 4055V; FTA SCPC |
| | Kabelvision Mux | 4080/1070H | 7+ TV | 7/8 | 28(.125) | also try 3500H, 27.000, 3/4; strong NZ |
| | Indostar | 4074/1076V | 1 | 3/4 | 6(.500) | **FTA** (new 06-03); V2201, A2202 |
| | Satelindo | 3935/1215H | 1 | 3/4 | 6(.700) | test card - only - reported |
| | Bali TV | 3926/1224H | 1 | 3/4 | 4(.208) | **FTA**. may not be active full time |

| Bird | Service | RF/IF & Polarity | # Program Channels | FEC | Msym |
|---|---|---|---|---|---|
| | **Brunei/Sing** | 3733/1417H | 1TV | 3/4 | 6(.000) |
| | **SCTV** | 3726/1424V | 1TV | 3/4 | 6(.620) |
| | **RCTI** | 3473/1677H | 2 | 3/4 | 8(.000) |
| As4/122E | Aust DTH test | 12.453V | 2 | 3/4 | 20(.000) |
| | CCTV internal | 4020/1130V | 6 | 3/4 | 27(.500) |
| | CCTV internal | 4100/1050V | 6 | 3/4 | 27(.500) |
| Jc3/128 | Miracle Net | 3996/1154V | 3 up to 6 | 5/6 | 22(.000) |
| | Asian bqt | 3960/1190V | up to 8 | 7/8 | 30(.000) |
| T18/138 | **Tests** | 3460/1690V | 1 | 3/4 | 30(.000) |
| Jc2A 154 | **BYU-TV** | 3915/1245V | 1+languages | 3/4 | 4(.166) |
| MeasSs2 | **Astro Mux** | 11.602H | up to 17TV | 3/4 | 41(.500) |
| | **VTV MUX** | 11.522V | 3 TV | 3/4 | 9(766) |
| B3/152 | AuroraBiz | 12.407V | 4 TV, 10 radio | 2/3 | 30(.000) |
| | Occ feeds | 12.445H | 1TV | 3/4 | 6(.666) |
| | **Globecast 2** | 12.525V | 13 TV, 8 radio | 2/3 | 30(.000) |
| | **Globecast (feeds)** | 12.550-.555V | 1TV | ¾ & 2/3 | 6(.110/.670) |
| | **Globecast** | 12.564V/T13 | 2+ TV | 2/3 | 30(.000) |
| | **UBI/tests** | 12.613H/T14L | 11+TV | 3/4 | 22(.500) |
| | **UBI/tests** | 12.640H/T14U | 11+TV | 3/4 | 22(.500) |
| | **Globecast 1** | 12.658V/T7 | 14TV, 15 radio | 2/3 | 30(.000) |
| | **UBI/tests** | 12.674H/T15L | 11+TV | 3/4 | 22(.500) |
| | **UBI/tests** | 12.701H/T15U | 11+TV | 3/4 | 22(.500) |
| | **WA ABC** | 12.702V | 1 TV, 1 radio | 7/8 | 14(.288) |
| | **WA SBS** | 12.720V | 4TV, 2 radio | 5/6 | 12(.600) |
| | **WA GWN/WIN** | 12.738V | 2TV | 7/8 | 14(.295) |
| C1/156E | Optus test bed | 12.288V/T1L | 6+ (ABC) TV | 1/2 | 28(.650) |
| | Aurora | 12.324V/T1U | 4+ (ABC) TV | 1/2 | 24(.450) |
| | Pay TV | 12.365V/T2 | 11TV, 2 radio | 3/4 | 27(.800) |
| | Aurora Home | 12.407V/T3 | 5 TV, 13 radio | 2/3 | 30(.000) |
| | Pay-TV | 12.447V/T4 | 5TV, 4 data | 3/4 | 27(.800) |
| | Pay TV (test) | 12.487V/T5 | 3+ TV, data | 3/4 | 27(.800) |
| | Aurora 2 | 12.527V/T6 | 7TV, 20 radio | 3/4 | 30(.000) |
| | Pay-TV | 12.567V/T7 | 10 TV | 3/4 | 27(.800) |
| | Pay-TV | 12.607V/T8 | 10 TV | 3/4 | 27(.800) |
| | Pay-TV | 12.647V/T9 | 10 TV | 3/4 | 27(.800) |
| | Austar | 12.305H/T11 | 6TV, 24 data | 3/4 | 30(.000) |
| | Pay-TV | 12.358H/T12 | 10 TV | 3/4 | 27(.800) |
| | Pay-TV | 12.398H/T13 | 10 TV | 3/4 | 27(.800) |
| | Pay-TV | 12.438H/T14 | 6TV, 3 data | 3/4 | 27(.800) |
| | Pay-TV | 12.478H/T15 | 10 TV | 3/4 | 27(.800) |
| | Pay-TV | 12.518H/T16 | 10 TV | 3/4 | 27(.800) |
| | Pay-TV | 12.558H/T17 | 10 TV | 3/4 | 27(.800) |
| | Pay TV | 12.598H/T18 | TV | 3/4 | 27(.800) |
| | Pay-TV | 12.638H/T19 | 10TV, 30 radio | 3/4 | 27(.800) |
| | Pay TV | 12.688H/T20 | 11TV | 3/4 | 27(.800) |
| B1/160 | 7 Central DTV | 12.354H | 1TV | 3/4 | 5(.100) |
| | Occ. feeeds | 12.380H | 1 TV - * | 3/4 | 6(.111) |
| | Occ. feeds | 12.384V | 1 TV - * | 3/4 | 6(.111) |
| | **Net 7 service** | 12.397H | 1 | 3/4 | 7(.200) |
| | **Imparja mx** | 12.379H | 2TV + 8 radio | 3/4 | 5(.424) |
| | **7 digital feeds** | 12.397H | 1TV | 3/4 | 7(.200) |
| | **Feeds to NZ** | 12.411V | 1 TV | 3/4 | 6(.111) |
| | **SBS Mux** | 12.420H | 3+ TV, 2+ radio | 5/6 | 12(.600) |
| | **TVNZ DTH** | 12.456V | 5+TV | 3/4 | 22(.500) |
| | **TVNZ Tests** | 12.483V | up to 10TV | 3/4 | 22(.500) |
| | Sky NZ | 12.519/546V | 7TV/7TV | 3/4 | 22(.500) |
| | Sky NZ | 12.581/608V | 6TV/6TV | 3/4 | 22(.500) |
| | Sky NZ | 12.644/671V | 9TV | 3/4 | 22(.500) |
| | **ABC HDTV** | 12.610H | 5TV | 7/8 | 14(.3288 |
| | Sky NZ | 12.707/734V | 8+TV | 3/4 | 22(.500) |
| | **Mix 106.3** | 12.574H | 1 radio + data | 3/4 | 1(.851) |
| P8/166E | **ABS-CBN** | 12.575H | 4+TV, 4+ radio | 2/3 | 13(.845) |
| | JEDI/TVB | 12.686H | 11+ TV | 3/4 | 28(.126) |
| | **ABC A-P** | 4180/970H | 2TV, 2 radio | 3/4 | 27(.500) |
| | Disney Pac | 4140/1010H | typ 6 TV | 5/6 | 28(.125) |
| | Taiwanese MUX | 4080/1070H | 12+ TV | 5/6 | 30(.000) |
| | NHK Joho | 4060/1090H | 7TV, 1 radio | 3/4 | 26(.470) |
| | FOX Mux | 4040/1110V | up to 5TV | 7/8 | 26(.470) |
| | **NET +** | 4121/1029V | 1 TV | 3/4 | 4(.774) |
| | ESPN USA | 4020/1130H | 8+TV, data | 3/4 | 26(.470) |
| | Discovery | 3980/1170H | 8 typ. | 3/4 | 27(.690) |
| | **CalBqt/Pas8** | 3940/1210H | up to 3+ FTA | 7/8 | 27(.690) |
| | CNBC HK | 3900/1250H | up to 7TV | 3/4 | 27(.500) |
| | FilipinoMUX | 3880/1270V | up to 8TV+radio | 5/6 | 28(.694) |
| | **TaiwanBqt** | 3860/1290H | 12TV + 30 r | 5/6 | 28(.000) |
| | **CCTV Mux** | 3829/1321H | up to 4 + 1 radio | 3/4 | 13(.240) |
| | TVBS-N | 3836/1314V | **1FTA**, 4+ CA | 3/4 | 22(.000) |
| | EMTV PNG | 3808/1342V | 1 + 2 radio | 3/4 | 5(.632) |
| | CNNI | 3780/1370H | 3, up to 5 TV | 3/4 | 25(.000) |
| | Discovery Asia | 3764/1386V | Up to 6 TV | 3/4 | 19(.850) |
| | MTV | 3740/1410H | 8 | 2/3 | 27(.500) |
| P2/169E | WA Mux Pv | 12.281V | 3+ TV, radio | 2/3 | 27(.500) |
| | **Ariang TV** | 12.401V | 1TV | 3/4 | 4(.400) |
| | ABS-CBN | 12.575H | 4TV, 2 radio | | 13(.845) |
| | **NBN** | 4126/1024V | 1TV | 3/4 | 3(.075) |
| | TARBS feeds | 4090V/1060V | 9TV + radio | 3/4 | 21(.000) |
| | **BBC SCPC** | 3986/1164H | 1TV | 1/2 | 5(.700) |
| | Middle East | 3836/1314V | 4 typ | 3/4 | 13(.331) |

| Receivers and Errata |
|---|
| FTA ; Singapore 23hrs, Brunei 1 hr;Brunei V1200 |
| was on 4048V; New Caledonia, parts of Australia |
| FTA SCPC; Australia, New Caledonia, some English |
| Planned Aust DTH; VTV CA, other FTA (10-04) |
| New Aug '04; Irdeto 2 |
| New Aug '04; Irdeto 2 + **TVSN occ. FTA** |
| PowerVu; some FTA (Ch. 1 & 3) |
| CA & **FTA** NTSC: Japan, Taiwan |
| also try 3660Vt, Sr 30.000, 3/4 |
| Erratic service; strong NZ & Australia |
| Aust East beam - **3 FTA** + 14 CA |
| WA only? Skew path, intended Asia |
| differs from 12.407 C1; **tune ch FTA; NZ+Au** |
| Net 10, V8 racing; also 12.452H, same parameters |
| NZ + Au, FTA Mcrypt CA |
| occ feeds, NZ + Au; recently 12.553V |
| New Feb 05; TVN racing, TV Korea |
| High performance beam; not NZ |
| High performance beam; not NZ |
| NZ + Au (Mcrypt, PowVu capable) |
| High performancebeam; not NZ |
| High performance beam; not NZ |
| ABC WA tests, FTA |
| SBS, radio tests WA FTA |
| Irdeto V2 CA, tests (GWN, WIN) |
| Widescreen ABC service feeds x 6 + tests; 29 radio |
| CA, replaced Aurora T10 1 February 2005; 19 radio |
| Tests; SBS-NDS CA, others FTA when here |
| NZ (90cm) + Australia (**Only svc left on NZ; C1**) |
| Australia NA only (leakage to Norfolk, New Cal) |
| Australia NA only (leakage); 9-Net x 3 widescreen |
| Arrow radio (still here), tone FTA |
| Pay-per-view movies; CA |
| Pay-per-view movies; CA |
| Pay-per-view movies; CA |
| Austar inter; Expo FTA |
| NDS CA + Mcrypt; CA |
| CA, subscriptions available Australia, Norfolk |
| Sky News active; 'Help x 2' FTA |
| CA, subscriptions avail Au, Nrflk; **TVSN FTA** |
| CA, subscriptions available Australia, Norfolk |
| "Home"CA, subscription available Australia, Nrflk |
| CA, subscriptions avail Australia, Norfolk |
| CA, subscription available Australia, Norfolk |
| CA, subscription available Australia, Norfolk |
| Central beam; originally to feed Tasmania |
| * - plus 12.451H, 12.460H |
| * - plus 12.293V, 12.402V, 12.411V |
| Full schedule less commercials - links; may be CA |
| PIDs vary; also try 12.360, 12.370 |
| occ. digital feeds; typ fta |
| Often NTSC; USA-Australia-NZ |
| **Also 12.437H, 12.456H** same params; HDTV+WS |
| FTA 7 channels (TVNZ x 4); +Maori ,DW, CCTV9 |
| Testing late Feb; possible FTA MUX coming? |
| NDS CA, subscription available NZ |
| NDS CA, subscription available NZ |
| NDS CA, subscription available NZ |
| also see 12.626,.643,.670, .688, & .706H |
| NDS CA, subscriptions available NZ |
| Radio SCPC is "cover" for high speed data |
| FTA, plans CA "soon" |
| June 2002-Irdeto-2 CA |
| Dateline west; also east PAS2, 3901V |
| PowVu CA |
| Tests - CA service announced |
| PowVu CA & **FTA**; subscription available |
| was PAS-2, previously 3992Vt; **feeds FTA** |
| NET25 + FTA; new PIDS April '03; reload |
| PowVu CA; ch 11 DCP-CCP bootload; audio **FTA** |
| PowVu/CA (some audio **FTA**) |
| PowVu CA & **FTA (EWTN + CBS +TBN +)** |
| NDS CA (6 channels); one test card occ FTA |
| **Myx FTA** V1960, A1920 + radio FTA |
| Mixed **FTA** & CA; STC gone (CA) |
| PowVu FTA, replaces PAS-2 svc |
| Difficult because of CCTV cross pole |
| PowVu CA |
| PowerVu; some audio **FTA** |
| PowerVu; Asian MUX; new parameters Nov '03 |
| **# 8 MTV China FTA V289, A290;** rest CA |
| PowVu CA, WIN, ABC NT, SBS; status unknown |
| Test - may not stay permanently |
| Temp **FTA**; subs Aust 011-800-2270-0722 |
| May not be permanent; not available to NZ |
| Occ **FTA** (Chile +); BIG power reduction Nov 03 |
| BBC World moved here January 2005 |
| **Irdeto 2 CA - subscriptions avail; Strong Tech** |

| Bird | Service | RF/IF & Polarity | # Program Channels | FEC | Msym |
|---|---|---|---|---|---|
| (PAS2/169E) | Adventists.tv | 4040/1010H | 1 | 2/3 | 5(.900) |
| | Feeds | 3868/1182H | 1 | 2/3 | 6(.620) |
| | Feeds | 3939/1211H | 2 (typ NTSC) | 2/3 | 6(.620)/7(.498) |
| | Cal PowVu | 3901/1249H | up to 8 | 3/4 | 30(.800) |
| | HK bouquet | 3850/1300H | up to 8 | 2/3 | 24(.900) |
| | Korean Bqt | 3771/1379H | 1 | 3/4 | 6(.510) |
| I304/174E | iPSTAR | 12.619H | 1 | 2/3 | 25(.220) |
| | Tests-NZ beam | 12.646H | 1 | 3/4 | 22(.418) |
| | RFO Poly | 4027/1123R | 1TV | 3/4 | 4(.566) |
| I701/130E | TNTV | 11.060&11.514V | 9 | 3/4 | 30(.000) |
| | TVRFO | 11.136V, 11.174V | 6+TV, 3+ radio | 3/4 | 23(.149) |
| | Canal+Sat | 11.610H | 16TV, 1 radio | 3/4 | 30(.000) |
| | PBS | 12.648HH | 16TV possible | 3/4 | 28(.066) |
| | TVNZ/BBC | 4186/964RHC | 1 | 3/4 | 5(.632) |
| | TVNZ | 4178/972RHC | 1 | 3/4 | 5(.632) |
| | AFRTS DTS | 4175/975L | 3 TV, 3 radio | 2/3 | 3(.680) |
| | TVNZ/Aptn | 4170/980RHC | 1 | 3/4 | 5(.632) |
| | Fiji Sky Pacific | 4095/1055LHC | 6TV + future radio | 3/4 | 16(.505) |
| | Fiji Sky Pacific | 4055/1095LHC | 6TV + future radio | 3/4 | 16(.505) |
| | TVNZ/feeds | 4052/1098RHC | 1 | 3/4 | 5(.632) |
| | TVNZ feeds | 4044/1106R | 1 | 3/4 | 5(.632) |
| | NZ Prime TV | 4024/1126L | 1 | 2/3 | 6(.876) |
| | NBC to 7 Oz | 3960/1190R | 1 | 7/8 | 6(.447) |
| | WorldNet | 3886/1264R | 1TV, 37 radio | 3/4 | 25(.000) |
| | Iearana | 3772/1378L | 1 | 3/4 | 4(.566) |
| | NASA TV | 3854/1296R | 1 TV | 3/4 | 2(.000) |
| | TVNZ | 3846/1304R | 1 | 3/4 | 5(.632) |
| | NBA (Barker) Ch | 3803/1347R | 1 | 3/4 | 6(.111) |
| TEMP OFF AIR | 10 Australia | 37691381R | 4 | 7/8 | 20(.000) |
| | USA feeds | 3749/1401R | 4? | ? | 26(.400) |
| NSS-5/177W | Pacific IP Data | 3745/1405R | none-date | 3/4 | 44(.995) |
| | iPSTAR Tests | 12.691V | 9+ TV | 5/6 | 17(.600) |

| Receivers and Errata |
|---|
| New December 2003; 24/7 "Hope Chs." |
| FTA (occ sport); also try 3863,Sr6.100 |
| FTA-typ NTSC-occ sport, live Shuttle |
| PowVu CA + FTA (ABC-A-P 'til 'early' 2005) |
| was 4148Vt; some FTA |
| Korean MUX, reload 12-04; new Sr |
| Tests, late May start; also 12.646H |
| Testing possible data links; June 2003 |
| SE spot beam; was 4027LHC |
| east spot; 10TV + r each, vertical pol. |
| FTA 11.136 Tahitian beam, 11.174 west beam; 12/04 |
| 1+ FTA, MediaGd "2"; + 10.975 weaker |
| Testing Fiji region pay-TV (MDS) package (Oct '04) |
| DMV/NTL early vers. occ feeds, typ ca |
| DMV/NTL early vers., occ feeds, typ ca |
| 'DTS Direct to Sailors; audio previously FTA - gone |
| DMV/NTL early vers. occ feeds, typically ca |
| Nagravision CA (> Feb 1, 2005) New PIDS |
| All now (including Fiji 1) CA; 7 Feb, 2005) |
| DMV/NTL early vers.,occ feeds, typ ca |
| SCPC, mixed CA and FTA feeds |
| PowVu CA; Auckland net feeds |
| CA, Leitch encoded |
| New PIDs Dec 03 very strong NZ, Pacific |
| FTA SCPC; East Hemi Beam-Tahiti |
| 24/7 live NASA - West Hemi beam (difficult!) |
| SCPC, mixed CA & FTA, feeds |
| NBA feeds - probably CA - new Nov 2003 |
| PowVu CA & TBN-JCTV FTA |
| 16-QAM (not MPEG-2 compatible) |
| Data only but useful for dish alignment, top Sr check |
| CA Tests - Taiwan TV; data coming?? (NZ beam) |

## MPEG-2 DVB Receivers: (Data here believed accurate; we assume no responsibility for correctness!)

**AV-COMM R3100**. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. AV-COMM P/L, 61-2-9939-4377.
**AV-COMM Tiny Tot**. FTA, 12Vdc operated, palm sized, low power consumption; review SF#120. Contact # above.
**AV-COMM R3100(A)**. FTA, good sensitivity, ease of use exc (review SF May 2002). See above contact.
**Coship 3188C**. Review SF#107. Blind search FTA rcvr; works well. Available from Satlink NZ www.satlinknz.co.nz. (ONLY KNOWN DISTRIBUTOR IN WORLD)
**Divitone**: "Left-handed" review SF#115; does "code key" entry. Available http://www.satmax.ws
**eMTech** eM-100B (FTA), eM-200B (FTA + Cb2), eM210B (FTA + 2xCI + positioner); KanSat 61-7-5484 6246 (review SF#89)
**Fortec Star Lifetime**. Two versions, both blind search, code-key programmable, one X 2 CI. Review SF#119. www.aDigitaLife.com
**Humax ICRI 5400 (Z)**. Embedded Irdeto + 2 CAM slots; initial units had NTSC glitch, now fixed. Widely available; new software avail 04-04, SF#76.
**Humax IRCI 5410 (Z)**. Adaptable version capable of holding multi-CA systems (SF#98, 99). Widely available; original importer Sciteq (www.sciteq.com.au).
**Hyundai-TV/COM**. HSS100B/G (Pacific), HSS-100C (China) FTA. Different software versions; 2.26/2.27 good performers, 3.11 and those with Nokia tuners also good; later 5.0 not good. SATECH (V2.26)
**Hyundai HSS700**. FTA, PowerVu, SCPC/MCPC. Review SF March 1999. Kristal Electronics, 61-7-4788-8902.
**Hyundai HSS800CI**. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.
**INNOVIA IDS3088**. Review SF#111. Blind search FTA receiver. High quality IRD; available Phoenix Technologies, and Satmax (http://www.satmax.ws).
**ID Digital CI-24 Sensor**. New August 2003; new lower noise tuner, extra sensitivity; CI Interface slot Irdeto 1 & 2; review SF#109. Sciteq 61-8-9409-6677.
**MediaStar D7**. FTA, preloaded w/ known services, exc. software (review SF July 1998). MediaStar Comm. 61-2-9618-5777
**MediaStar D7.5**. New (May 00) single chip FTA; review June 00 SF. MediaStar Comm. Int. 61-2-9618-5777
**MediaStar D10**. FTA and Irdeto embedded CA. VG receiver; see review SF#96, August 2002. Contacts immediately above.
**MultiChoice (UEC) 660**. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738
**Nokia "d-box" (V1.7X)**. European, FTA, may only be German language, capable of Dr. Overflow software. SF#95, p. 14.
**Nokia 9200/9500**. When equipped with proper software, does Aurora, originally did pay-TV services provided software has been "patched" with "Sandra" or similar program. See SF#95, p. 14, SF#96 p. 15. SatWorld 61-3-9773-9270 (www.satworld.com.au)
**Pace DGT400/DVR500**. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818). UECs replaced; Sept 18 (2003) "drop-dead" day; all were to have been "turned off" on that date (in fact, those with V1.13 CAMs may still be working; still does radio including CA, not TV).
**Pace "Worldbox"** (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version (see SF#115, p. 15).
**Phoenix 111, 222**. PowVu capable, NTSC, graphics, ease of use. (111 review SF#57). SATECH (below)- 222; terminated
**Phoenix 333**. FTA SCPC, MCPC, analogue + dish mover. Detailed SF review SF#51. SATECH 61-3-9553-3399.
**Pioneer TS4**. Mediaguard CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCal ++687-43.81.56)
**PowerVu** (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, CMT etc). For service only - call Scientific Atlanta 61-2-9452-3388. For revision model D9850, see Scientific Atlanta (below).
**PowTek**. Blind Search Chinese sourced, field tests rate it highly. Source jason@aDigitaLife.com
**Prosat 2102S**. FTA SCPC/MCPC, NTSC/PAL, SCART + RCA. Sciteq 61-8-9306-3738.
**SatCruiser DSR-101**. FTA SCPC/MCPC, PowVu, NTSC/PAL. (Skyvision Australia 61-3-9888-7491, Telsat 64-6-356-2749); no longer available.)
**SatCruiser DSR-201P**. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - (Skyvision - see above); no longer available.
SATWORK ST3618. Blind search FTA receiver. Fast search, problems, especially in "memory-filing" system; review SF#111. Available DMSi at tim@dmsiusa.com.
SATWORK ST3688. Blind search, 3000+ ch memory, multi-format RF modulator; improved version 3618. Review SF#113; available DMSi (above).
Scientific Atlanta D9223, D9234, D9225; Orig. PowerVu, superceded Dec 2003 by D9850. Commercial receiver, available TVO 61-2-9281-4481, John Martin
**Strong Technologies SRT2620**. SCPC, MCPC FTA, exc sensitivity, ease use, programming. Review SF#91 (ph. below).
**Strong SRT 4600**. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Technologies 61-3-8795-7990.
**Strong 4800**. SCPC, MCPC, embedded Irdeto+ CAM slots, does code-key with additional software, Aurora. Strong Technologies 61-3-8795-7990.
**Strong 4800 II**. SCPC, MCPC CAM slots x 2 for Aurora +, Zee, Canal +, code key with additional software. Strong Technologies (above); review SF#103.
**Strong 4890**. SCPC, MCPC, 30Gb PVR, 2 CAM slots, DiSEqC 1.0; 1.2 (review SF#84), does code key with additional software; Strong Technologies, # above.
UEC Atlas/Titan (1000). New July 2003, replacing DGT400 for Austar. No SCART, L-band loop; also available Rural Electronics 61-2-6361 3636.
**UEC642**. Designed for Aurora (Irdeto), approved by Optus; w/new software, C-band FTA; faulty P/S. Norsat 61-8-9451-8300.
**UEC660**. Upgraded UEC642, used by Sky Racing Aust., Foxtel,limited FTA. (Nationwide - 61-7-3252-2947); P/S problems.
**UEC700/720**. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, seldom sold to consumers; propensity to fall off back of trucks.
**Winersat DigiBox 200**. C + Ku basic receiver but includes Teletext for NZ TVOne, 2 VBI. Satlink NZ, fax 64-9-814-9447; long term teletext problems (loses TT).
**"X" Digital**. When modified with "aftermarket" Internet softwre, does Aurora and other V-1 CA without card; review SF#119. Strong Technologies (61-3-8795-7990).

### Accessories:

**Aurora smart cards**. MYCRYPT (Irdeto V2) cards now available (Jan 2005), Sciteq 61-8-9409-6677.
**PowerVu Software Upgrade**: PAS-8, 4020/1130Hz, Sr 26.470, 3/4; pgm ch 11 and follow instructions (do not leave early!)
**PowerVu (Pacific) repair service**: Cable & Sat Svcs. Darius West. 61-2-9792-1421 (Email darius@cases.net.au)

# WITH THE OBSERVERS

**AT PRESS DEADLINE**

Fiji I-701 signal levels should now be permanent; their own C-band uplink dish having been completed, fly-away gone. ABC's ABC2 now operational - see notes below. Ref p. 6 here, TVNZ admits 'discussions ongoing' with TV3, Prime.

**AsiaSat 3S/105.5E**: "Star Sports Hong Kong was briefly FTA on 3920Hz late in February; now CA again." (**Ellen**) "Aaj TV testing on 3750Vt has changed Sr to 2.820." (**Peter**)

**Gorizont 33/145E**: "Perviy Kanal on 3657RHC, Sr 3.200, 3/4 while on 3875RHC, combo of Kultura Telekanal and NTV, Sr 12.475, 1/2." (**KT**) (Editor's note: Gorizont 33 presently has an inclined orbit of +/-2.7 degrees and will require tracking with dishes larger than 2 metres. Russian sources advise D. Leach (NSW) they plan to replace this satellite with a 15 year lifetime geostationary bird prior to end of this year. However, whether it will operate using a beam/footprint that will include areas south of the equator is unknown - the odds are it will not.)

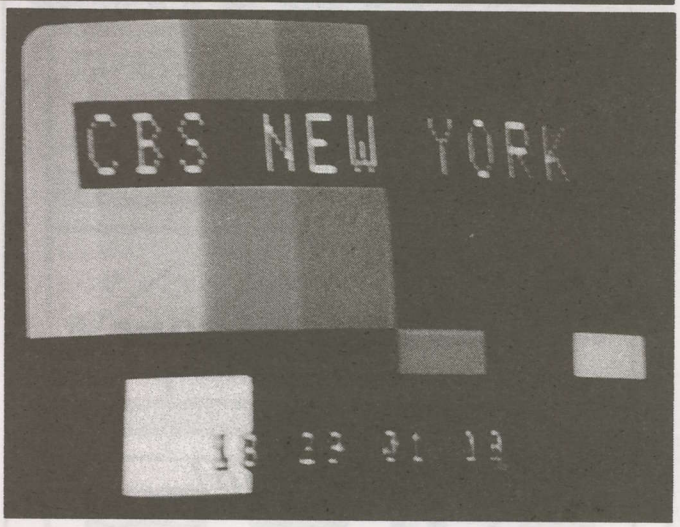
**Intelsat 701/180E**: "NASA-TV (3854RHC, Sr 2.000, 3/4) is back to apparent full power; locks and holds in NZ on 1.8m with circular insert." (**TyD**, NZ) (Editor's note: During first week in March, they were carrying International Robotic Competition trials - amazing stuff people create in their garage workshops!)

**NSS-5/177W**: "Channels in the NZ beamed Best TV MUX on 12.691Vt are now CA". (**Brad S.**) "C-band signal? 4185RHC, loads as 'Transport C' which is USA's BYU-TV (Mormon) with VPID 4377, English audio 4385 (21 different languages here on other audio PIDs)." (**Ollie**)

**NSS-6/95E**: "LoveWorld is gone from 12.729Vt." (**Morris**)

**Optus B1/160E**: "ABC DIG JAZZ (FTA), APID 700 on 12.610, 12.626, 12.670 (also had ABC2 test card), 12.688 and 12.706 (Hz)," (**B.Richards**, SA) "TVNZ testing with ten channels of test cards 12.483V, Sr 22.500, 3/4; now, when will the programming begin?" (**C.Sutton**, NZ) (Editor's note: 'Tests' not there full time; see report starting p. 6, here)

**Optus B3/152E**: "TV Korea, FTA initially but unknown long term, 12.563Hz, VPID 1061, APID 1024." (**B.Richards**, SA) "TVN is FTA, for the moment, 12.564Hz, Sr 30.000, V1160, A1120." (**Pedro**) "When lower side of T11 is not being used for non-MPEG2 MCPC, it reverts to SCPCs on 12.417 and 12.425(Hz), both Sr 6.666, 3/4. Australian F1 racing feed (Net 10) was on 12.442Vt, Sr 6.666, 3/4 March 5 and 6." (**AI**, NSW) "T3/12.525Vt, Sr 30.000, 2/3 Globecast; new channel labelled IPTR (Iranian Pacific TV; V1960, A1920) seems to be US based with American advertising." (**IF**, Qld) "AMTV continues to be one long promo (12.657Vt, Sr 30.000, 2/3 Globecast); list now includes locally produced 'movie show' and 'world-football'." (**NS**, NSW) "Globecast's MCPC returned to 12.563Vt (Sr 30.000, 2/3) February 8; one channel at start-up (TVN racing, previously labelled 'Horse Racing'). On 25 February TVK (Korea) was added to MUX - is FTA copy of CA 'TV Korea' appearing on Globecast's 12.657Vt MCPC. On February 9, UBI's two Serbian channels (PINK and PINKplus) were replaced with a 'Technical difficulties' graphic - which still exists on March 5th. Are these gone for good from UBI?" (**IF**, Qld)




USA-direct feeds into the Pacific have become increasingly rare following the loss of I804 resulting in removal of several feed links on I701. CBS continues to be available within California Bouquet (PAS-2, 3901Hz, Sr 30.800, 3/4).

**Optus C1/156E**: "Alternate racing channel TVN is now on 12.367Vt, Videoguard CA, V1101, A1102." (**Dennis**) (Editor's note: Also see B3 above) "T1/upper 12.324Vt, Sr 24.450, 1/2 Aurora MCPC switched to CA (Irdeto V1, Mcrypt) February 9. On T2/12.367Vt, Foxtel's WA ABC (+ radio) went CAT February 25. Foxtel has added 'FOXTEL iQ Help Program' 11 minute loop to its FTA 'Digital Help' on 12.438Hz (Sr 27.800, 3/4). Watch it and learn that the iQ does not record subtitles!" (**IF**, Queensland)

**PanAmSat PAS2/169E**: "Pacific IP new on 3.864Vt, Sr 19.533, 3/4." (**S.Holtz**, New Caledonia)

**Telstar 10/76.5E**: "Jhankar TV, 4033Hz, Sr 2.940, 3/4 (V308, A256) is new." (**B.Richards**, SA) "TV Lanka 1, 3652Hz, was briefly FTA, returning to CA." (**Boss**)

**WITH THE OBSERVERS**: Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. Photos of yourself, your equipment or off-air photos taken from your TV screen are welcomed. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 at 1/15th second with ASA 100 film; for NTSC, change shutter speed to 1/30th. Use no flash, set camera on tripod or hold steady. Alternately submit any VHS speed, format reception directly to SatFACTS and we will photograph for you. Deadline for April 15th issue: April 4th by mail or 5PM NZT April 5th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

**Is terrestrial 3.4 - 3.7 GHz legal in New Zealand?**

Craig Sutton (www.apsattv.com) recently asked Ian Hutchings of (the) Ministry of Economic Development (MED) whether newly emerging terrestrial transmitters, located in 'expanded C-band' - 3.4 - 3.7 GHz - are (1) legal, and, (2) whether the interference from such transmitters must be tolerated by C-band receiver systems. His response follows.

"The Ministry is aware of concerns that C-band satellite downlinks and fixed wireless access systems may not be compatible. The ITU allocates frequency bands to radiocommunication services, generally to two or more services, and in the case of the original 'C band' 3.7 - 4.2 GHz the allocations are on a primary basis (each of the following has 'equal' rights):

Fixed, Fixed-Satellite (space to earth), and, Mobile (except aeronautical mobile).

From the ITU agreement(s), individual countries have the right to decide on the exact use licensed in their country from the above 'allocations'. Satellites operated by other countries are limited in pfd (power) so as to not cause interference to a fixed (terrestrial) service using the same frequency assignment(s). The allocation of 3.4-3.7 GHz to 'Fixed-Satellite' occurred in 1979, with compromises. The main issue was pre-existing Radiolocation (or radar) and a need for military flexibility (in choosing radar operating frequencies). 1979 Footnote 5.433 urged countries to cease such operations in this band by 1985. Another compromise was an agreement by Intelsat not to make 'major use' of the extension band(s). With the ownership of Intelsat now changing, this may cease to be true however.

"There is little doubt that the use of FWA in NZ at 3.5 GHz (3.4 - 3.6) is fully in accordance with the ITU framework, domestic legislation, and the emerging practices of many overseas administrations. I understand the issue is not so much a co-frequency issue, but that a satellite receive installation has little selectivity before the highly sensitive active (LNB) stages, and that a terrestrial signal may simply overload the satellite system even as the terrestrial system is tens of MHz away from the wanted satellite transmission. I am not aware of any problems between licensed terrestrial systems and C-band receivers as the licensing process takes these into account (yes, there are some C-band fixed link terrestrial licenses in New Zealand). The issue is that most satellite reception is not licensed and cannot be protected as locations and parameters (of unlicensed receive terminals) are simply not known (to the licensing authority).

"The proposed NZ Fixed Wireless Access (FWA) use was published as early as 2001. The band plan does have about 100 MHz clearance from the 3.7 GHz band edge, but that does not guarantee avoidance of problems to sensitive, lightly filtered satellite receivers. The satellite user may need to take action to better protect the (unlicensed) receiving installation from the upcoming FWA services. The number of FWA services and their coverage remains unclear but may be limited to where Telecom Jetstream does

not prove cost effective. This will be a licensee decision, not a regulatory one. It is also important to note that with the Ministry's 2 blocks (of frequencies), there are 9 other blocks allocated to commercial users (http://rfr.med.govt.nz).

"The short answer is FWA is legal and coming. It does appear in a frequency band adjacent to most C band satellite reception but may still overload poorly protected satellite receivers. It all depends on the specifics and siting of the various installations; satellite users need to be aware."

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**Soapbox:** "I am very sad that Fiji-One will remain CA, and that access to Fiji TV decoders and cards will not happen. I had a half dozen pre-sells of the service with almost no effort, and had ordered in some 1.8m dishes for the installs. RIP Fiji-TV!" (**PB**, NZ) "Those Foxtel channels with teletext PIDs may in fact be sub-titling. The Nokia can call up a heading above the subtitling, 'Cavena Subtitling', and perhaps these pay-TV teletext PIDs are in actual fact subtitling options." (**IF**, Queensland) "Telephone calls essentially for free, to anyplace in the world? http://www.skype.com. It works great - wow!" (**KS**, New York) (Editor's note: Believe it or not - AT&T has lost so much switched-circuit telephone business they are actually going to give it up! Imagine - in less than a decade, Voice over internet phone has essentially pushed the switched folks out of business. AT&T is merging with a state of the art internet firm (SBC) and their plan is to make virtually all direct-dial telephone calls *free* as a benefit to signing up with them for broadband service [from which they make more money than switched telephone connections ever did.]) "In trying to educate my potential customer base about satellite TV that does not involve pay-TV (i.e. the FTA channels), have created www.antechtv.com.au; feedback will be appreciated!" (**R.Dalton**) "Whiskers on relay contacts? I believe platinum relay contacts solved that problem - if the problem was so well documented, why did Hughes insist on using relays that were not immune to this problem?" (**AI**, NSW) (Editor's note: Ask Hughes, which of course was bought by News Corp, last year.) "Solomon Islands Telekom, which suffered along with the rest of the Pacific when I804 failed in January, was well down the road to shifting to NSS-5 at the time of the loss. The last switching to NSS-5 and associated links were functional again by mid-day 21 January although interim service for Honiara was accomplished through I701." (**HH**, Honiara)

# SCRATCHI

Demise of your porn channels - more thieves!

I've previously written about the virtues of thieves in our industry and have come to the reasoned conclusion the word thief should appear along side the word 'opportunist'. The recent demise of the porn channels, Ku, is a true show of 'class' by the operators who set themselves up and then left the consumers dangling in their own spit (or other liquid). I have dragged out the big stick and asked those responsible to extend their hands to cop a hiding. You have done nothing less than stolen from the customers and the same direction appears to be followed again and again by satellite TV programmers serving Australia and New Zealand.

Currently we have 'I-View' planning to establish multicultural programming, alongside ex-TARBS operated UBI and TV Plus. Three multicultural operators when the TARBS evidence suggests that one alone cannot make a profit and stay in business? Do these people have no conscience?

The proposed (Tasmanian) trade show is a positive concept and we will need exhibitors and attendees to make it a success. But should ex-porn opportunists and multicultural shonks be allowed to attend, much less exhibit? Would they be on hand for any reason other that duping the unwary into giving them cash for a service that may be gone the next day?

Greed is at all levels. Recall the Super League war which tore apart our Rugby League Code? The same events are now transpiring with Sky Racing and new operator TVN. Nothing good emerges from the kind of disharmony now being generated, other than opportunistic greed. There is seldom a winner in bruised egos, and many bystanders are unfortunately hit by the flying shrapnel.

Many may assume I hide under a pseudonym because of some hidden agenda. Others assume from my largely negative comments that I have nothing nice to say about any aspect of our young industry. Quite the opposite is true. Clark Kent (Superman) hid his identity because it allowed him to move about freely without the stigma and controversy that many attached to his actions. I wear the same cloak because this is a public forum and to be totally identified would limit that forum in a major way. The truth is difficult for many to accept - and their response is to look for someone to punish. Uncloaking my identity would have the effect of ending the 'open forum' of Scratchi.

The sage tells us "Money makes the world go around," but does our industry and the hobby it has spawned need to have its guts ripped out each time someone smiles at a new business opportunity?

Scratchi - your friend or foe; your actions decide!

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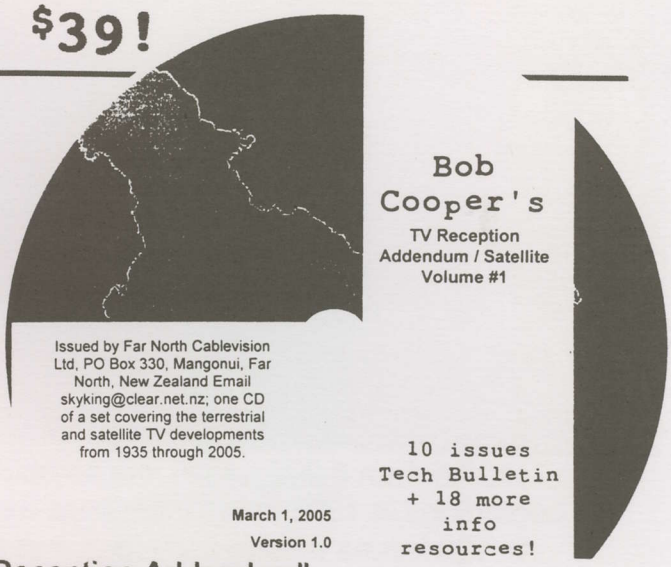


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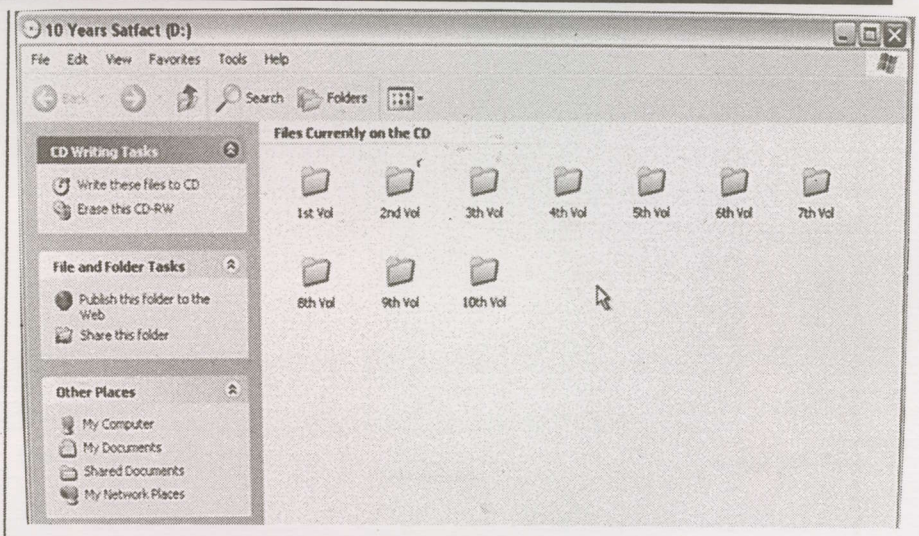


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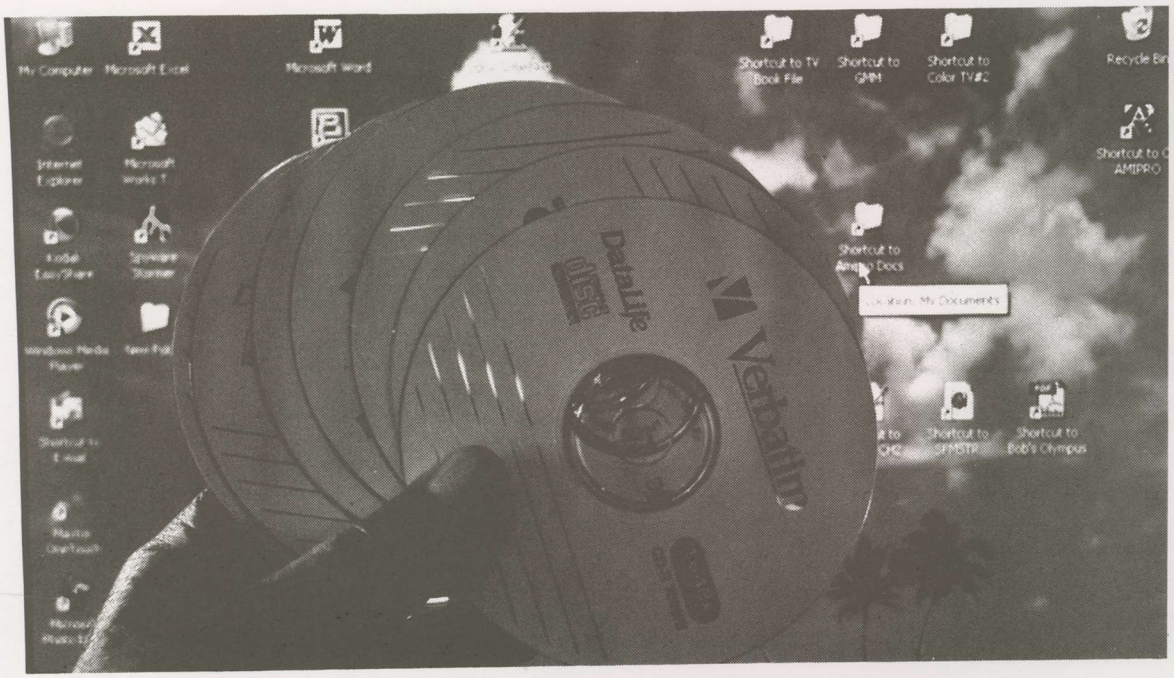


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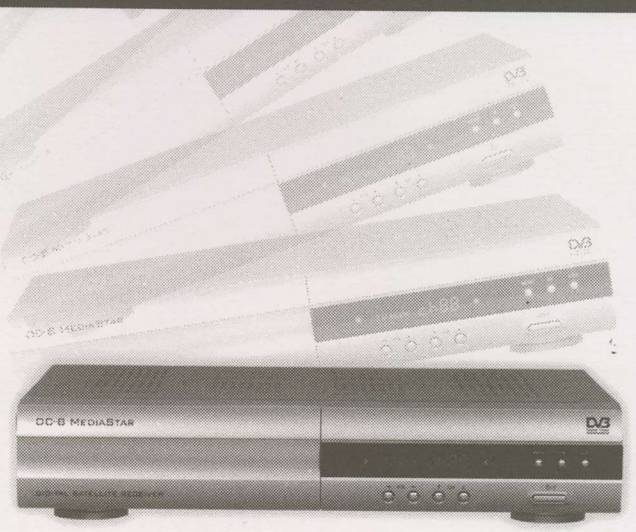


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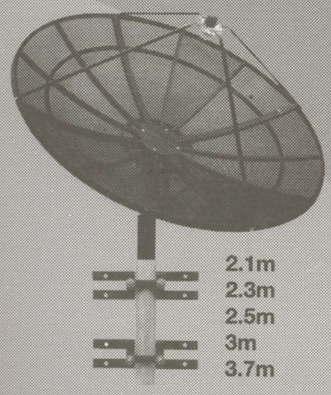

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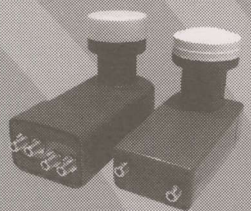

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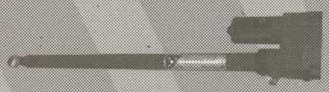

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